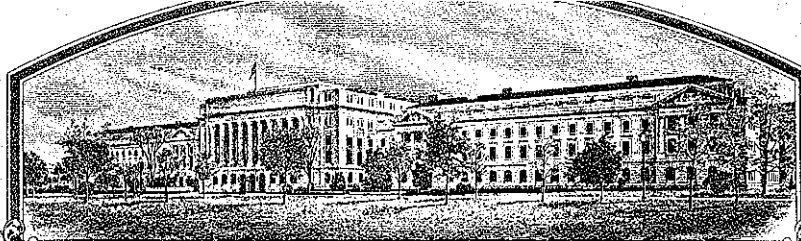


No.

7900071



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Growers Seed Association

Whereas, THERE HAS BEEN PRESENTED TO THE
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *seventeen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

COTTON

'GSA 74'



In Testimony Whereof, I have hereunto set
my hand and caused the seal of the Plant
Variety Protection Office to be affixed
at the City of Washington
this 24th day of April in
the year of our Lord one thousand nine
hundred and eighty.

Attest:

Thomas H. Lane
Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

BB
Secretary of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

FORM APPROVED
OMB NO. 40-R3822

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

| | | | | | |
|--|--|---|--|---|---|
| 1a. TEMPORARY DESIGNATION OF VARIETY | | 1b. VARIETY NAME GSA 74 | | FOR OFFICIAL USE ONLY PV NUMBER 7900071 | |
| 2. KIND NAME Cotton | | 3. GENUS AND SPECIES NAME Gossypium Hirsutum | | FILING DATE 4-11-79 | TIME 12:00 A.M. P.M. |
| 4. FAMILY NAME (BOTANICAL) Mallow | | 5. DATE OF DETERMINATION October 1976 | | FEE RECEIVED \$ 500.00 \$ 250.00 | DATE 4-11-79 4/1/80 |
| 6. NAME OF APPLICANT(S) AGRIGENETICS CORP SH 5/5/86 Growers Seed Association | | 7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) P.O. Box 1656, Lubbock, Texas 79408 | | 8. TELEPHONE AREA CODE AND NUMBER 806-747-4125 | |
| 9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Coroporation | | 10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION Texas | | 11. DATE OF INCORPORATION July 9, 1965 | |
| 12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: | | | | | |

George B. Babcock P.O. Box 1656 Lubbock, Texas 79408

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☒ 13B. Exhibit B, Novelty Statement.
- ☒ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- ☒ 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) ☒ YES ☐ NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☒ YES ☐ NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? ☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.) **89H 7/3/79**

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☐ NO (If "Yes," give name of countries and dates.)

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? ☒ YES ☐ NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

3/30/79
(DATE)

George B. Babcock
(SIGNATURE OF APPLICANT)

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and \$500 fee (\$250 filing fee and \$250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

- 5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- 13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.
- 13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- 13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.
- 13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.
- 14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)
- 15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

13A. EXHIBIT A. ORIGIN AND BREEDING HISTORY OF THE COTTON VARIETY GSA 74.

- (1.) The new variety of cotton GSA 74 was developed by selecting within a breeding seed stock designated H Y C - M D R - 2 F₂ (High yield cottons - Multiple Disease Resistant),² supplied by Dr. W.P. Sappenfield, University of Missouri, College of Agriculture, Delta Center, Portageville, Missouri, January 18, 1973.

To develop (H Y C - M D R - 2) F₂ Dr. Sappenfield assembled seed stocks of several² designated varieties of cotton and breeding line, and I supplied seed of several varieties and strains of cotton as a collaborator in this breeding project.

Dr. Sappenfield having the necessary facilities and personell made many crosses and backcrosses, and established a breeding stock composed of a mass or bank of many characters (genes) which he gave the designation (HYC - MDR - 2) F₂.

- (2.) The seedstock (HYC-MD-R-2)F₂ was planted at Lubbock, Texas in May 1973, in soil infested with Verticillium Wilt organism, and Fusarium Wilt-Root knot nematode disease complex organisms. When the seedlings were 8 weeks old they were inoculated with four (I, II, V, VII) races of bacterial blight. Two weeks later the susceptible plants were removed.

In the fall of 1973, ten plants resistant to wilt and nematode diseases were selected and numbered 1 to 10. The seedcotton was picked separately from each of the 10 plants and numbered GSA, MO # 1 to GSA, MO #10, respectively, and ginned.

These seed lots were shipped to Iguala, Mexico in October and planted to produce the Winter generation. The Mexico crop was observed in April 1974 and differences studied among the increases of the 10 selections, and tabulated.

The seed produced at Iguala was harvested and shipped to Lubbock, Texas and planted in the disease infested soil used in the initial planting of 1973. This increase planting was inoculated with bacterial blight culture and those plants showing susceptible symptoms were removed from the stand.

The remaining plants were studied during the early, midseason, and late season growths for earliness, productinity, and resistance to wilt and nematode diseases. At the end of the season it was determined that increase from plant number 7 (GSA, MO, 74) was superior in all characteristics to the other nine selections.

- 13A. (2.) The yield of GSA, MO, 74-7, progeny row was harvested, ginned and shipped to Iguala, Mexico, and planted for the winter increase. The maturing crop in April 1975, was studied and evaluated for purity, uniformity and production potential. The Mexico crop was harvested and shipped to Lubbock, Texas, and planted on Wilt infested soil in early may.

This planting was observed and tabulated for disease resistance, purity and productivity. Adjustments were made by roguing and inoculating with bacterial blight. The yield was harvested in the fall of 1975, and the above procedures were applied to increases in 1975- 1976.

In the fall of 1977, 10 pounds of seed of the line designated GSA, 74-7, was harvested and shipped to Iguala, Mexico and planted on one acre for winter increase. The production of this acre was harvested and shipped to Lubbock, Texas, and planted to 20 acres, isolated from other varieties. The yield from this 20 acres in 1978 was increased again in 1979.

(3.) Type and Frequency of variants.

The 20 acre increase field of GSA 74-7 (GSA,74) contained approximately 1,2000,000 plants and was rogued three times in the summer of 1978. Thirty-five offtype plants were found and rogued out of the population.

The offtype plants were 10 to 15 centimeters shorter in height than the population and the branches were 6-8 centimeters shorter than the varietal type. Other plant characteristics were similar to the varietal type.

(4.) Evidence of uniformity and stability.

The increase populations were observed by the breeder many times and no evidence of instability was found. The varietal type continued to breed true in all characteristics.

7900071



GROWERS SEED ASSOCIATION

P.O. BOX 1656 LUBBOCK, TEXAS 79408 TEL. 806-747-4125

TWX 910-896-4381-GROWERSEED LBK

EXHIBIT B. NOVELTY STATEMENT

SIMILARITY

The variety of cotton, GSA 74, most closely resembles variety GSA 71. Similar characteristics include: main stem erect for both varieties; the flowers are nectaried; petals are cream colored; pollen is cream colored; fruiting branch type short; growth determinate; gossypol condition, normal glands, normal bud gossypol; bracteoles breadth, length greater than width; foliage intermediate leaf color light green.

DIFFERENCES

Plant height: GSA 74, 12 cm. taller than Lankart: GSA 71, 25 cm. taller than Lankart; main stem cm. to 1st fruiting branch, 12 for GSA 74 and 9 for GSA 71; number of nodes to 1st fruiting branch, 8 for GSA 74 and 6 for GSA 71; leaf width of widest leaf at maturity, for GSA 74, 14 cm, for GSA 71, 11 cm.; leaf pubescence, light for GSA 74 and Stoneville 213 type for GSA 71; seeds size small for GSA 74 and large for GSA 71; fuzz moderate (DPL-16) for GSA 74 and sparse Gregg 35 type for GSA 71; bolls locules 3-4 for GSA 74 and 4-5 for GSA 71; pitted, none for GSA 74 and finely for GSA 71; ¹⁾ seed size, small for GSA 74 and large for GSA 71; diameter, 30 mm. for GSA 74 and 40 mm. for GSA 71; shape, GSA 74 length > width and for GSA 71, length = width; disease, ²⁾ GSA 74 resistant to Verticillium Wilt, GSA 71 susceptible; GSA 74 resistant to 5 races of bacterial blight and GSA 71 resistant to race I.

1) See attached tables for significant differences.

2) See attached tables for Verticillium Wilt classifications.

CM:mr

Attach to Exhibit B. Novelty Statement
Variety GSA 74
1979

Summation of Percent Wilt of Growers Seed Association entries,
GSA 78, and GSA 74 varieties.

| Variety | Test No. | Mean Percent Wilt |
|-----------------|-------------------------|-------------------|
| GSA 78 | GSA - 1 (page 4) | 21.3 |
| GSA 74 | GSA - 2 (page 4) | 13.1 |
| Rowden | Susceptible, check plot | 73.6 |
| Stonerville 603 | Resistant, commercial | 17.1 |

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Cotton)

OBJECTIVE DESCRIPTION OF VARIETY

INSTRUCTIONS: See Reverse. COTTON (GOSSYPIMUM SPP.)

| | |
|---|--|
| NAME OF APPLICANT(S) GROWERS SEED ASSOCIATION | FOR OFFICIAL USE ONLY 7900071 |
| ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) P. O. BOX 1656 LUBBOCK, TEXAS | VARIETY NAME OR TEMPORARY DESIGNATION GSA 74 |

Place the appropriate number that describes the varietal character of this variety in the boxes below.

Place a zero in first box (e.g., **0 8 9** or **0 9**) when number is either 99 or less or 9 or less.

| | | | | | |
|--|-------------------------|--|----------------------------|--|--|
| 1. SPECIES: | | 1 = GOSSYPIMUM HIRSUTUM | | 2 = GOSSYPIMUM BARBADENSE | |
| 2. AREA(S) OF ADAPTION (0 = Not Tested, 1 = Not Adapted, 2 = Adapted): | | | | | |
| 0 | EASTERN | 0 | DELTA | 0 | CENTRAL |
| 0 | WESTERN LOW HOT VALLEYS | 0 | SAN JOAQUIN | 2 | HIGH PLAINS |
| 0 | EL PASO AREA | OTHER (Specify) | | | |
| 3. MATURITY (50% Open Boll): | | | | | |
| 1 | 0 | NO. OF DAYS EARLIER THAN | 8 | 1 = COKER 310 | 2 = DELTAPINE 16 |
| 5 | 1 | NO. OF DAYS LATER THAN | 1 | 3 = STONEVILLE 213 | 4 = PAYMASTER 111 |
| | | | | 5 = ACALA 1517-70 | 6 = ACALA SJ-1 |
| | | | | 7 = LANKART 57 | 8 = OTHER (Specify) FM 1303 |
| 4. PLANT HABIT: | | | | | |
| 2 | 1 = SPREADING | 2 = INTERMEDIATE | 3 = COMPACT | 3 | 1 = FOLIAGE SPARSE |
| | | | | 3 | 2 = DENSE |
| | | | | 3 | 3 = OTHER (Specify) INTERMEDIATE |
| 5. PLANT HEIGHT: | | | | | |
| 2 | 0 | CM. SHORTER THAN | 4 | 1 = COKER 310 | 2 = DELTAPINE 16 |
| 2 | 5 | CM. TALLER THAN | 7 | 3 = STONEVILLE 213 | 4 = PAYMASTER 111 |
| | | | | 5 = ACALA 1517-70 | 6 = ACALA SJ-1 |
| | | | | 7 = LANKART 57 | 8 = OTHER (Specify) |
| 6. MAIN STEM: | | | | | |
| 3 | 1 = LAX | 2 = ASCENDING | 3 = ERECT | 12 | CM. TO FIRST FRUITING BRANCH |
| | | | | 8 | NO. OF NODES TO FIRST FRUITING BRANCH (from cotyledonary node) |
| 7. LEAF: | | | | | |
| 1 | 4 | CM. WIDTH OF WIDEST LEAVES AT MATURITY | 5 | 1 = GLABROUS (HAIRS AS SPARSE AS D ₂ SMOOTH) | 2 = SMOOTH |
| | | | | 2 = SMOOTH LEAF (DELTAPINE SMOOTH LEAF) | 3 = PUBESCENT (STONEVILLE 213) |
| | | | | 4 = HEAVY PUBESCENCE (H ₁ OR H ₂) | 5 = OTHER (Specify) light pubescence |
| 8. LEAF PUBESCENSE: | | | | | |
| 9. LEAF COLOR: | | | | | |
| 2 | 1 = VIRESCENT YELLOW | 2 = LIGHT GREEN | 3 = DARK GREEN (ACALA-442) | 4 = RED | 5 = OTHER (Specify) |
| 10. LEAF TYPE: | | | | | |
| 1 | 1 = NORMAL | 2 = OKRA | 3 = SUPER OKRA | 4 = OTHER (Specify) | |
| 11. FLOWER: | | | | | |
| 2 | 1 = NECTARILESS | 2 = NECTARIED | 3 = FEMORIN > MIDLN | | |
| 12. FRUITING BRANCH TYPE: | | | | | |
| 2 | 1 = CLUSTER | 2 = SHORT | 3 = NORMAL | 1 | 1 = DETERMINATE |
| | | | | 2 | 2 = INDETERMINATE |
| 13. GOSSYPOL CONDITION: | | | | | |
| 3 | 1 = GLANDLESS | 2 = REDUCED GLANDS | 3 = NORMAL GLANDS | 1 | 1 = NORMAL BUD GOSSYPOL |
| | | | | 2 | 2 = HIGH BUD GOSSYPOL |
| 14. SEEDS: | | | | | |
| 9 | 5 | 0 | ± | 0 | 5 |
| SEED INDEX (Fuzzy seed basis) | | | | | |
| 2 | Seed Fuzz: | 3 = HEAVY (ACALA SJ-1) | 4 = OTHER (Specify) | | |

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15. BOLLS: ☐ 1 = 3-4 ☐ 2 = 4-5 ☐ 3 = 5-6 ☐ 4 = 7-8 ☐ 5 = 9-10 ☐ 6 = 11-12 ☐ 7 = 13-14 ☐ 8 = 15-16 ☐ 9 = 17-18 ☐ 10 = 19-20 ☐ 11 = 21-22 ☐ 12 = 23-24 ☐ 13 = 25-26 ☐ 14 = 27-28 ☐ 15 = 29-30 ☐ 16 = 31-32 ☐ 17 = 33-34 ☐ 18 = 35-36 ☐ 19 = 37-38 ☐ 20 = 39-40 ☐ 21 = 41-42 ☐ 22 = 43-44 ☐ 23 = 45-46 ☐ 24 = 47-48 ☐ 25 = 49-50 ☐ 26 = 51-52 ☐ 27 = 53-54 ☐ 28 = 55-56 ☐ 29 = 57-58 ☐ 30 = 59-60 ☐ 31 = 61-62 ☐ 32 = 63-64 ☐ 33 = 65-66 ☐ 34 = 67-68 ☐ 35 = 69-70 ☐ 36 = 71-72 ☐ 37 = 73-74 ☐ 38 = 75-76 ☐ 39 = 77-78 ☐ 40 = 79-80 ☐ 41 = 81-82 ☐ 42 = 83-84 ☐ 43 = 85-86 ☐ 44 = 87-88 ☐ 45 = 89-90 ☐ 46 = 91-92 ☐ 47 = 93-94 ☐ 48 = 95-96 ☐ 49 = 97-98 ☐ 50 = 99-100

16. BRACTEOLAS: ☐ 1 = LENGTH < WIDTH ☐ 2 = LENGTH = WIDTH ☐ 3 = LENGTH > WIDTH

17. YIELD: Compared to... ☐ 1 = COKER 310 ☐ 2 = DELTAPINE 16 ☐ 3 = STONEVILLE 213 ☐ 4 = PAYMASTER 111 ☐ 5 = ACALA 1517-70 ☐ 6 = ACALA SJ-1 ☐ 7 = LANKART 57

18. FIBER LENGTH: Complete one or more of the following and give the means: ☐ 1 = COKER 310 ☐ 2 = DELTAPINE 16 ☐ 3 = STONEVILLE 213 ☐ 4 = PAYMASTER 111 ☐ 5 = ACALA 1517-70 ☐ 6 = ACALA SJ-1 ☐ 7 = LANKART 57

19. FIBER STRENGTH AND ELONGATION: ☐ 1 = COKER 310 ☐ 2 = DELTAPINE 16 ☐ 3 = STONEVILLE 213 ☐ 4 = PAYMASTER 111 ☐ 5 = ACALA 1517-70 ☐ 6 = ACALA SJ-1 ☐ 7 = LANKART 57

20. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) ☐ 1 = COKER 310 ☐ 2 = DELTAPINE 16 ☐ 3 = STONEVILLE 213 ☐ 4 = PAYMASTER 111 ☐ 5 = ACALA 1517-70 ☐ 6 = ACALA SJ-1 ☐ 7 = LANKART 57

21. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) ☐ 1 = COKER 310 ☐ 2 = DELTAPINE 16 ☐ 3 = STONEVILLE 213 ☐ 4 = PAYMASTER 111 ☐ 5 = ACALA 1517-70 ☐ 6 = ACALA SJ-1 ☐ 7 = LANKART 57

REFERENCES: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

- (1) Brown, Harry B., and J. O. Ware, 1958, Cotton, McGraw-Hill Book Company, Inc., New York.
- (2) Lewis, C. F., and H. H. Ramey, Jr., 1971, 1970 Regional Cotton Variety Tests, ARS-34-130, United States Department of Agriculture.

COLORS: Nickerson's or any recognized color fan may be used to determine flower color of the described variety.

OBJECTIVE DESCRIPTION OF VARIETY

DESIGNATION
VARIETY
GROWER
MARKETING
AGENCY

Table 4. Results of the Verticillium Wilt Resistant Cotton Variety Test at Lubbock, 1978.

| Variety | Yield, lbs. per acre | Boll proerties | | | | | | | | | | | | | Wilt infect- tion, % |
|------------------------|-------------------------|----------------|------|------------|--------|--------------------------|--------------------------------|----------------------|------------------------|------------------------|----------------------|-----------------|-----------------|---------------------|-------------------------------|
| | | Lint | Seed | Classer's: | | Gin turn- out % | Gin waste, lbs./ bale | Lint % of seed | Lint index grams | Seed index grams | Seeds per boll | Fiber proerties | | | |
| | | | | Grade | Staple | | | | | | | Micro- naire | Length Unif. | Strength gms/tex | |
| Stoneville 68302-33032 | 889 1535 | 51-51 | 33.0 | 24.4 | 432 | 5.70 | 38.9 | 7.05 | 11.0 | 30.6 | 3.1 | 1.04 | 75 | 21.0 | 26 |
| CSA 78 | 870 1950 | 41-41 | 33.5 | 22.0 | 533 | 5.69 | 34.5 | 6.81 | 12.9 | 28.0 | 3.6 | 1.07 | 82 | 24.5 | 12 |
| Ranger R-12 | 835 1511 | 41-41 | 33.0 | 24.2 | 441 | 5.15 | 37.7 | 6.90 | 11.4 | 27.3 | 3.8 | 1.03 | 81 | 22.5 | 18 |
| Dawson V-14 | 820 1643 | 41-41 | 33.5 | 24.4 | 432 | 5.21 | 37.4 | 6.46 | 10.8 | 29.3 | 3.5 | 1.03 | 79 | 24.0 | 21 |
| Paymaster 785 | 819 1441 | 41-42 | 32.0 | 24.8 | 419 | 6.34 | 38.1 | 7.70 | 12.5 | 30.5 | 3.7 | 0.96 | 79 | 24.0 | 30 |
| Ranger R-14-14 | 803 1473 | 41-41 | 33.5 | 25.1 | 406 | 5.11 | 38.0 | 6.87 | 11.2 | 27.4 | 3.7 | 1.03 | 81 | 23.0 | 21 |
| CSA 74 | 785 1496 | 51-51 | 34.0 | 23.3 | 476 | 4.95 | 36.8 | 6.23 | 10.7 | 28.4 | 3.6 | 1.12 | 80 | 22.5 | 16 |
| Paymaster 303 | 757 1516 | 41-51 | 33.5 | 22.0 | 532 | 6.06 | 36.1 | 7.23 | 12.8 | 29.4 | 3.2 | 1.05 | 77 | 21.0 | 27 |
| All-lex Wiltmaster 569 | 734 1495 | 51-41 | 32.5 | 22.6 | 505 | 5.94 | 35.3 | 6.79 | 12.5 | 29.9 | 3.3 | 1.04 | 79 | 23.0 | 25 |
| Paymaster 266 | 714 1458 | 41-41 | 33.0 | 22.4 | 513 | 5.91 | 35.6 | 6.41 | 11.6 | 31.9 | 3.4 | 1.03 | 81 | 24.5 | 26 |
| Pioneer Brand X99-5 | 713 1434 | 51-41 | 33.0 | 22.8 | 497 | 5.70 | 35.5 | 6.66 | 12.1 | 29.5 | 3.3 | 1.03 | 78 | 23.5 | 34 |
| Dawson E-10 | 673 1497 | 41-51 | 33.5 | 23.5 | 468 | 5.27 | 34.8 | 6.12 | 11.5 | 29.1 | 3.3 | 1.08 | 77 | 24.0 | 36 |
| Acala 1517-70 | 672 1424 | 51-51 | 35.0 | 20.5 | 606 | 5.87 | 34.2 | 6.93 | 13.3 | 28.1 | 3.1 | 1.17 | 80 | 26.5 | 34 |
| Tamcot SP-21S | 639 1248 | 41-51 | 33.5 | 24.1 | 446 | 5.71 | 37.4 | 6.51 | 10.9 | 31.8 | 2.7 | 1.06 | 74 | 20.5 | 34 |
| Deltapine SR-5 | 585 1141 | 41-51 | 33.0 | 23.3 | 477 | 5.50 | 36.2 | 6.36 | 11.2 | 30.4 | 3.2 | 1.04 | 79 | 23.0 | 43 |
| McLair 300 | 581 1196 | 51-51 | 34.5 | 21.5 | 555 | 5.75 | 35.1 | 6.63 | 12.3 | 29.6 | 3.0 | 1.14 | 75 | 24.0 | 51 |
| Tamcot 738 | 558 1174 | 51-51 | 34.0 | 22.0 | 532 | 5.81 | 35.6 | 6.17 | 11.2 | 32.5 | 2.8 | 1.10 | 77 | 24.5 | 43 |
| Pioneer Brand X8009 | 557 1124 | 51-51 | 33.0 | 22.6 | 504 | 5.41 | 36.0 | 6.16 | 11.0 | 33.7 | 2.6 | 1.06 | 74 | 23.0 | 50 |
| Cascot L-7 | 537 998 | 51-41 | 33.5 | 24.3 | 437 | 5.16 | 38.0 | 6.19 | 10.1 | 30.8 | 3.0 | 1.10 | 76 | 22.0 | 44 |
| CSA 71 | 482 1038 | 51-51 | 33.0 | 20.5 | 606 | 5.80 | 35.0 | 6.82 | 12.7 | 28.9 | 2.8 | 1.03 | 78 | 22.5 | 49 |
| Delecot 277 | 459 973 | 51-51 | 34.0 | 19.5 | 659 | 5.80 | 35.7 | 6.88 | 12.4 | 29.2 | 2.7 | 1.15 | 75 | 23.0 | 39 |
| Nacha WR-2 | 360 714 | 51-51 | 33.5 | 21.1 | 575 | 6.14 | 37.3 | 7.19 | 12.1 | 30.9 | 2.7 | 1.00 | 78 | 22.5 | 55 |
| L.S.D. | 80 159 | | 1.0 | 1.6 | 74 | 0.44 | 1.4 | 0.45 | 0.8 | 2.2 | 0.3 | 0.02 | 1.9 | 2.2 | |

Table 7. Results of the New Strains in Cotton Variety Test at Lubbock, 1978.

7900071

| Variety | Yield, lbs. per acre | | Classer's: | | Gin turn- out % | Gin waste, lbs./ bale | Boll properties | | | | Fiber properties | | | | |
|------------------------|-------------------------|------|------------|--------|--------------------------|--------------------------------|-----------------------|------------------------|------------------------|------------------------|----------------------|-----------------|--------|-------|---------------------------|
| | | | | | | | Boll size grams | % of seed cotton | Lint index grams | Seed index grams | Seeds per boll | Micro- naire | Length | | Strength Unif. gms/tex |
| | Lint | Seed | Grade | Staple | | | | | | | | | UHM | Unif. | |
| McNair 220 | 1017 | 1674 | 50-51 | 34.0 | 21.2 | 926 | 5.41 | 40.4 | 6.92 | 10.2 | 30.7 | 3.7 | 1.06 | 79 | 23.5 |
| Stoneville 6B302-33032 | 1013 | 1467 | 41-41 | 32.0 | 26.7 | 641 | 5.95 | 42.2 | 8.08 | 11.1 | 30.2 | 3.8 | 1.01 | 78 | 21.0 |
| Paymaster 303T | 981 | 1746 | 40-41 | 34.0 | 22.8 | 830 | 5.81 | 38.4 | 7.25 | 11.6 | 29.9 | 3.9 | 1.04 | 80 | 23.0 |
| Coker 4360 | 966 | 1546 | 50-50 | 33.0 | 24.0 | 617 | 6.30 | 40.7 | 8.01 | 11.7 | 31.1 | 4.1 | 0.98 | 79 | 23.0 |
| Pioneer Brand X7007 | 964 | 1565 | 50-41 | 33.0 | 23.9 | 770 | 6.14 | 39.3 | 7.66 | 11.8 | 30.6 | 4.0 | 1.05 | 80 | 22.0 |
| MAR-77 | 941 | 1568 | 40-41 | 33.0 | 26.2 | 525 | 5.29 | 41.0 | 7.45 | 10.7 | 28.3 | 3.6 | 1.09 | 77 | 21.5 |
| Pioneer Brand X7001 | 910 | 1466 | 50-50 | 32.5 | 23.9 | 770 | 6.17 | 40.2 | 7.46 | 11.1 | 32.3 | 3.6 | 1.02 | 81 | 21.0 |
| Paymaster 145 | 904 | 1477 | 50-50 | 33.5 | 26.2 | 661 | 5.66 | 39.5 | 7.55 | 11.6 | 28.7 | 4.3 | 1.01 | 81 | 22.5 |
| D&L 6856-980-02-210 | 884 | 1693 | 41-50 | 34.5 | 22.0 | 722 | 5.75 | 36.8 | 6.57 | 11.3 | 31.3 | 3.5 | 1.07 | 80 | 24.5 |
| Macha 11T1 | 881 | 1609 | 50-41 | 33.0 | 24.2 | 609 | 5.80 | 37.7 | 7.21 | 11.9 | 29.4 | 4.2 | 1.03 | 79 | 23.5 |
| Pioneer Brand X8009 | 878 | 1432 | 41-41 | 33.5 | 23.0 | 817 | 5.83 | 40.1 | 7.07 | 10.6 | 32.1 | 3.3 | 1.04 | 78 | 22.0 |
| Ring-Around B-18 | 876 | 1566 | 41-41 | 33.0 | 25.2 | 707 | 5.67 | 38.1 | 6.88 | 11.2 | 30.5 | 4.0 | 1.08 | 80 | 23.0 |
| GSA 71 | 876 | 1563 | 41-41 | 32.5 | 24.2 | 611 | 6.05 | 37.6 | 7.53 | 12.5 | 29.3 | 4.0 | 1.02 | 80 | 23.5 |
| All-Tex Wiltmaster 569 | 874 | 1546 | 41-41 | 33.0 | 23.0 | 823 | 5.93 | 36.7 | 6.81 | 11.8 | 31.0 | 3.8 | 1.03 | 79 | 22.5 |
| G&P 3774 | 870 | 1521 | 41-41 | 33.5 | 21.5 | 745 | 6.08 | 40.3 | 7.46 | 11.1 | 31.9 | 3.2 | 1.05 | 77 | 21.0 |
| Pioneer Brand X99-5 | 869 | 1531 | 41-41 | 33.5 | 24.0 | 761 | 5.79 | 38.6 | 7.29 | 11.6 | 29.8 | 3.8 | 1.03 | 79 | 22.0 |
| MAR-26-32-77 | 864 | 1322 | 40-41 | 33.0 | 26.2 | 527 | 5.12 | 42.1 | 7.63 | 10.5 | 27.4 | 4.1 | 1.02 | 81 | 22.0 |
| Pioneer Brand X168-9 | 861 | 1368 | 41-41 | 32.5 | 25.7 | 683 | 6.06 | 40.5 | 7.86 | 11.5 | 30.3 | 3.8 | 1.02 | 79 | 21.5 |
| Pioneer Brand X7006 | 855 | 1340 | 31-40 | 33.0 | 27.9 | 591 | 5.79 | 41.8 | 7.98 | 11.1 | 29.4 | 4.2 | 1.03 | 81 | 22.0 |
| Hurd 560 | 849 | 1406 | 41-41 | 33.0 | 25.5 | 692 | 5.40 | 38.9 | 7.21 | 11.3 | 28.3 | 4.3 | 1.02 | 81 | 23.5 |
| Cascot BR-1 | 848 | 1373 | 40-40 | 33.0 | 25.2 | 566 | 6.17 | 41.2 | 8.28 | 11.8 | 29.8 | 4.0 | 1.03 | 79 | 22.0 |
| Paymaster 303 | 846 | 1465 | 40-40 | 33.0 | 24.2 | 610 | 6.04 | 38.5 | 7.74 | 12.3 | 29.2 | 3.9 | 1.07 | 78 | 23.0 |
| CS-31N-77 | 838 | 1263 | 41-40 | 32.5 | 27.2 | 489 | 5.63 | 42.2 | 7.72 | 10.6 | 29.9 | 3.5 | 1.06 | 76 | 21.5 |
| Tamcot 788 | 838 | 1503 | 41-41 | 34.0 | 22.9 | 674 | 6.03 | 37.7 | 7.44 | 12.4 | 29.6 | 3.4 | 1.08 | 79 | 24.5 |
| GSA 75-81 | 837 | 1614 | 41-41 | 33.5 | 22.5 | 693 | 6.19 | 35.6 | 7.47 | 13.5 | 28.7 | 4.4 | 1.06 | 83 | 24.5 |
| Pioneer Brand PR 68 | 833 | 1462 | 41-40 | 33.0 | 24.2 | 754 | 6.17 | 38.1 | 7.51 | 12.2 | 30.5 | 3.8 | 1.06 | 81 | 23.5 |
| Ranger R614-14 | 828 | 1370 | 41-40 | 33.0 | 24.9 | 720 | 5.32 | 38.5 | 7.25 | 11.6 | 27.5 | 4.2 | 1.03 | 82 | 23.5 |
| Paymaster B7-3166 | 827 | 1504 | 41-41 | 33.0 | 22.8 | 827 | 6.88 | 36.6 | 7.49 | 13.0 | 32.7 | 4.0 | 1.05 | 81 | 23.0 |
| Dunn 219 | 825 | 1546 | 50-41 | 35.0 | 21.7 | 741 | 6.80 | 36.1 | 8.53 | 15.1 | 27.9 | 4.1 | 1.13 | 82 | 28.0 |
| Dunn 224 | 823 | 1429 | 41-40 | 33.0 | 23.0 | 667 | 6.03 | 37.5 | 7.59 | 12.7 | 28.9 | 3.9 | 1.04 | 79 | 24.5 |
| Ranger R-12 | 820 | 1371 | 41-40 | 33.5 | 24.4 | 744 | 5.65 | 38.7 | 7.49 | 11.8 | 28.5 | 4.0 | 1.01 | 82 | 23.0 |
| Hurd 570 | 819 | 1368 | 41-41 | 33.5 | 23.6 | 783 | 5.65 | 39.4 | 7.56 | 11.6 | 28.5 | 4.0 | 1.01 | 82 | 24.5 |
| Coker 348 | 819 | 1628 | 41-41 | 34.0 | 21.3 | 761 | 6.42 | 34.6 | 7.59 | 14.4 | 28.4 | 4.1 | 1.08 | 80 | 24.5 |
| GSA 75 | 817 | 1654 | 41-41 | 33.0 | 21.9 | 724 | 6.17 | 34.4 | 7.47 | 14.2 | 27.6 | 4.5 | 1.07 | 82 | 25.5 |
| Macha 1100 | 814 | 1492 | 41-41 | 32.0 | 23.0 | 818 | 6.09 | 36.3 | 7.10 | 12.5 | 30.2 | 4.2 | 0.97 | 80 | 23.0 |
| CAMD-BE-77 | 813 | 1371 | 50-41 | 33.0 | 23.4 | 650 | 5.70 | 39.9 | 7.48 | 11.3 | 29.5 | 3.7 | 1.03 | 78 | 21.5 |
| CAMD-SE-77 | 811 | 1438 | 40-41 | 34.0 | 23.5 | 644 | 5.39 | 39.2 | 6.98 | 10.9 | 29.3 | 3.8 | 1.10 | 80 | 25.0 |
| Paymaster 792 | 803 | 1558 | 50-41 | 33.0 | 22.1 | 868 | 5.80 | 35.5 | 6.69 | 12.1 | 29.9 | 4.3 | 1.03 | 81 | 24.0 |
| GSA -74 | 798 | 1441 | 41-40 | 33.5 | 22.7 | 681 | 4.86 | 37.8 | 6.18 | 10.2 | 28.9 | 4.1 | 1.08 | 81 | 24.0 |
| GSA MO-74-16 | 787 | 1595 | 41-40 | 33.5 | 20.5 | 808 | 6.33 | 34.2 | 7.76 | 15.0 | 27.1 | 4.4 | 1.05 | 82 | 24.5 |
| Dawson E-10 | 781 | 1505 | 41-41 | 34.5 | 23.3 | 651 | 5.41 | 36.7 | 6.83 | 11.8 | 28.3 | 3.9 | 1.09 | 79 | 26.0 |
| Mor-Cot 709 | 779 | 1516 | 50-41 | 33.5 | 21.9 | 881 | 6.79 | 36.0 | 7.64 | 13.6 | 31.1 | 4.0 | 1.04 | 81 | 25.5 |
| Macha WR-2 | 772 | 1293 | 41-41 | 33.5 | 23.9 | 626 | 7.65 | 39.0 | 8.74 | 13.7 | 33.2 | 3.9 | 1.02 | 80 | 22.5 |
| S.W.S. 5 | 765 | 1444 | 50-50 | 35.0 | 22.7 | 843 | 6.58 | 36.5 | 8.20 | 14.2 | 28.5 | 4.1 | 1.09 | 81 | 26.5 |
| ORS-1C-77 | 747 | 1314 | 40-41 | 33.0 | 25.2 | 702 | 4.96 | 36.2 | 6.33 | 11.2 | 27.5 | 4.0 | 1.03 | 78 | 22.0 |
| ORHE-77 | 746 | 1432 | 50-50 | 34.0 | 23.0 | 822 | 4.93 | 37.2 | 6.16 | 10.4 | 28.9 | 3.7 | 1.06 | 77 | 21.5 |
| Brownfield S&D H221 | 745 | 1479 | 51-50 | 35.0 | 19.8 | 1025 | 5.58 | 36.5 | 7.49 | 13.0 | 26.4 | 3.9 | 1.16 | 82 | 28.5 |
| Mor-Cot M-70A | 735 | 1331 | 41-40 | 33.0 | 24.1 | 759 | 6.32 | 37.3 | 7.50 | 12.6 | 30.4 | 4.2 | 1.01 | 79 | 22.5 |
| Rilcot Stripper Cala S | 733 | 1595 | 41-50 | 32.5 | 22.6 | 689 | 5.97 | 35.8 | 6.22 | 11.2 | 33.3 | 2.8 | 1.02 | 77 | 22.5 |
| LEBO-77 | 729 | 1298 | 50-41 | 33.5 | 22.0 | 719 | 5.91 | 38.1 | 7.27 | 11.8 | 30.1 | 3.7 | 1.11 | 79 | 22.5 |
| Lockett 4789A | 716 | 1367 | 40-41 | 34.0 | 22.7 | 684 | 5.62 | 37.0 | 6.74 | 11.5 | 29.9 | 3.1 | 1.06 | 80 | 23.0 |
| GSA 75-16 | 696 | 1401 | 41-41 | 32.0 | 23.2 | 656 | 5.90 | 34.2 | 7.10 | 13.7 | 27.6 | 4.4 | 0.96 | 80 | 23.5 |
| Brownfield S&D H220 | 688 | 1296 | 41-50 | 35.0 | 19.1 | 907 | 5.46 | 38.2 | 7.75 | 12.5 | 26.1 | 3.6 | 1.15 | 82 | 28.5 |
| ORSEB-77 | 680 | 1163 | 40-41 | 32.0 | 24.6 | 737 | 5.21 | 39.1 | 6.92 | 10.8 | 28.6 | 4.5 | 1.01 | 78 | 20.5 |
| Riley Y1819 | 658 | 1256 | 50-50 | 34.0 | 21.8 | 728 | 5.96 | 37.8 | 7.66 | 12.6 | 28.6 | 3.4 | 1.05 | 81 | 24.0 |
| Riley R191 | 654 | 1316 | 41-41 | 33.0 | 23.2 | 658 | 5.96 | 36.3 | 6.78 | 11.9 | 31.1 | 3.6 | 0.98 | 78 | 23.5 |
| Paymaster 4298 | 648 | 1208 | 41-41 | 35.0 | 22.1 | 873 | 6.36 | 36.4 | 7.83 | 13.7 | 28.7 | 4.3 | 1.15 | 80 | 25.0 |
| Mor-Cot M-74 | 647 | 1362 | 50-41 | 34.0 | 22.3 | 855 | 5.61 | 35.2 | 6.64 | 12.2 | 28.9 | 3.8 | 1.04 | 78 | 24.5 |
| A.F. 12-7G | 642 | 1430 | 51-50 | 34.5 | 20.6 | 970 | 5.54 | 33.0 | 6.75 | 13.7 | 26.3 | 3.8 | 1.06 | 80 | 24.5 |
| Riley Y1316 | 605 | 1243 | 41-41 | 33.5 | 20.0 | 836 | 5.60 | 35.6 | 6.34 | 11.5 | 30.6 | 3.7 | 1.01 | 79 | 23.0 |
| Mor-Cot 1141 | 604 | 1291 | 41-50 | 34.5 | 20.8 | 955 | 5.39 | 35.1 | 6.75 | 12.5 | 27.3 | 3.3 | 1.05 | 79 | 22.5 |
| GSA 177 Wn | 585 | 1131 | 50-50 | 34.5 | 22.3 | 700 | 5.59 | 35.3 | 7.00 | 12.9 | 27.3 | 4.0 | 1.09 | 82 | 26.0 |
| Riley Y1720 | 550 | 1197 | 40-40 | 33.0 | 20.2 | 828 | 5.88 | 35.1 | 6.57 | 12.2 | 30.5 | 3.6 | 1.00 | 80 | 24.5 |
| A.F. 61-7G | 455 | 1015 | 41-41 | 34.5 | 21.2 | 945 | 5.71 | 31.8 | 7.32 | 15.7 | 24.1 | 3.6 | 1.15 | 79 | 24.0 |
| L.S.D. | 96 | 175 | | 1.2 | 2.2 | 122 | 0.39 | 1.5 | 0.55 | 0.9 | 1.3 | 0.4 | 0.04 | 1.4 | 2.0 |

GSA 78

Table 2. Results of the Regional Irrigated Cotton Variety Test at Halfway, 1978.

7900071

| Variety | Yield, lbs. per acre | | Classer's: | | Gin turn- out % | Gin waste, lbs./ bale | Boll properties | | | | | Fiber properties | | | | |
|------------------------|-------------------------|------|------------|--------|--------------------------|--------------------------------|-----------------------|--------------------------------|------------------------|------------------------|----------------------|------------------|--------|-------|---------------------------|--|
| | | | | | | | Boll size grams | Lint % of seed cotton | Lint index grams | Seed index grams | Seeds per boll | Micro- naire | Length | | Strength Unif. gms/tex | |
| | Lint | Seed | Grade | Staple | | | | | | | | | UHM | Unif. | | |
| Paymaster 145 | 746 | 1351 | 51-51 | 33.0 | 25.0 | 573 | 5.64 | 36.8 | 6.37 | 10.9 | 31.7 | 3.6 | 1.01 | 79 | 22.3 | |
| Cascot RR-1 | 728 | 1255 | 42-41 | 33.0 | 26.4 | 582 | 5.87 | 40.3 | 8.02 | 11.9 | 28.7 | 3.8 | 1.05 | 79 | 23.1 | |
| Cascot L-7 | 703 | 1256 | 41-41 | 34.0 | 26.0 | 596 | 4.72 | 37.0 | 5.99 | 10.2 | 28.3 | 3.4 | 1.07 | 76 | 21.9 | |
| Paymaster 792 | 690 | 1441 | 41-51 | 33.0 | 21.9 | 722 | 5.02 | 35.4 | 6.80 | 12.4 | 25.5 | 4.0 | 1.03 | 80 | 24.1 | |
| Lockett 77 | 682 | 1271 | 51-41 | 33.5 | 23.6 | 708 | 5.26 | 36.9 | 6.51 | 11.1 | 29.0 | 3.1 | 1.06 | 75 | 19.5 | |
| Paymaster 266 | 672 | 1320 | 51-51 | 33.5 | 23.2 | 729 | 5.04 | 34.7 | 6.39 | 12.0 | 26.6 | 3.5 | 1.00 | 79 | 23.1 | |
| Pioneer Brand X7006 | 665 | 1133 | 41-41 | 33.0 | 25.9 | 538 | 4.91 | 39.0 | 6.71 | 10.5 | 27.7 | 3.7 | 1.00 | 77 | 22.9 | |
| Pioneer Brand X168-9 | 662 | 1162 | 41-41 | 32.5 | 24.3 | 608 | 5.25 | 38.7 | 6.68 | 10.6 | 29.5 | 3.1 | 1.01 | 76 | 22.1 | |
| Paymaster 784 | 661 | 1210 | 51-51 | 33.0 | 23.3 | 651 | 5.05 | 33.8 | 5.53 | 10.8 | 29.9 | 3.8 | 0.98 | 78 | 22.1 | |
| Paymaster 303T | 648 | 1277 | 51-51 | 34.0 | 22.9 | 669 | 4.92 | 32.8 | 5.52 | 11.3 | 28.6 | 3.6 | 1.02 | 78 | 23.6 | |
| Paymaster 785 | 644 | 1153 | 51-51 | 33.0 | 25.2 | 633 | 5.46 | 38.7 | 7.28 | 11.5 | 28.2 | 3.6 | 0.98 | 78 | 23.8 | |
| Mor-Cot 1141 | 642 | 1398 | 51-41 | 34.0 | 22.8 | 675 | 5.17 | 34.5 | 6.39 | 12.1 | 27.1 | 3.2 | 1.10 | 76 | 22.8 | |
| Coker 312 | 639 | 1207 | 51-41 | 34.5 | 21.7 | 807 | 4.29 | 37.5 | 6.11 | 10.2 | 25.6 | 3.1 | 1.19 | 75 | 24.4 | |
| Ring-Around B-32 | 639 | 1123 | 41-51 | 33.0 | 24.7 | 587 | 5.28 | 37.7 | 6.72 | 11.1 | 28.8 | 3.7 | 1.00 | 79 | 22.9 | |
| Hurdt 560 | 628 | 1125 | 51-51 | 34.0 | 24.7 | 592 | 5.11 | 37.0 | 6.43 | 10.9 | 28.9 | 3.6 | 0.97 | 78 | 23.6 | |
| Dunn 219 | 620 | 1230 | 51-51 | 34.5 | 23.2 | 727 | 5.73 | 35.7 | 7.44 | 13.4 | 26.7 | 3.8 | 1.12 | 80 | 24.5 | |
| Macna 11T1 | 619 | 1213 | 41-51 | 33.0 | 22.9 | 677 | 5.95 | 36.3 | 6.27 | 11.0 | 33.4 | 3.2 | 1.01 | 75 | 23.4 | |
| Westburn M | 612 | 1234 | 42-41 | 33.0 | 24.7 | 656 | 5.10 | 33.3 | 5.54 | 11.1 | 29.8 | 3.3 | 1.05 | 74 | 24.3 | |
| Tamcot SP-21S | 603 | 1065 | 41-51 | 34.0 | 25.7 | 613 | 5.28 | 38.8 | 7.04 | 11.1 | 28.3 | 3.0 | 1.00 | 75 | 21.4 | |
| Paymaster 303 | 600 | 1235 | 41-41 | 33.5 | 24.0 | 687 | 5.68 | 37.2 | 7.26 | 12.3 | 28.3 | 3.2 | 1.05 | 75 | 22.5 | |
| Pioneer Brand X99-5 | 599 | 1168 | 51-41 | 33.5 | 23.8 | 629 | 4.79 | 35.2 | 5.94 | 11.0 | 27.5 | 3.4 | 1.01 | 77 | 22.1 | |
| Paymaster B7-3166 | 598 | 1117 | 41-51 | 33.5 | 23.7 | 634 | 5.42 | 34.3 | 6.82 | 13.1 | 26.4 | 3.6 | 1.03 | 78 | 23.9 | |
| Pioneer Brand X7001 | 596 | 1123 | 51-50 | 34.0 | 23.9 | 625 | 4.80 | 37.2 | 6.24 | 10.6 | 27.8 | 3.2 | 1.05 | 75 | 21.0 | |
| Hurdt 570 | 592 | 1086 | 51-51 | 33.5 | 24.1 | 612 | 5.10 | 37.5 | 6.61 | 11.0 | 28.2 | 3.4 | 1.01 | 77 | 23.8 | |
| Deltapine SR-5 | 591 | 1106 | 41-51 | 33.0 | 23.6 | 708 | 4.80 | 37.5 | 6.50 | 10.8 | 27.0 | 3.3 | 1.04 | 77 | 24.1 | |
| Tamcot 788 | 589 | 1179 | 51-41 | 34.0 | 23.5 | 711 | 5.57 | 37.0 | 6.40 | 10.9 | 31.3 | 3.1 | 1.08 | 75 | 24.8 | |
| Stripper 31A | 584 | 1205 | 51-41 | 32.0 | 23.2 | 729 | 4.74 | 35.1 | 5.85 | 10.8 | 27.6 | 3.6 | 0.95 | 77 | 22.5 | |
| Mor-Cot 709 | 583 | 1168 | 41-41 | 33.0 | 22.6 | 686 | 5.88 | 35.5 | 6.76 | 12.3 | 30.0 | 3.6 | 1.01 | 78 | 23.3 | |
| McNair 307 | 583 | 1105 | 51-51 | 33.5 | 23.3 | 650 | 5.26 | 37.4 | 6.65 | 11.2 | 28.7 | 3.4 | 1.08 | 78 | 22.6 | |
| Ranger R614-14 | 581 | 1068 | 51-41 | 33.5 | 24.1 | 614 | 4.52 | 37.3 | 6.34 | 10.7 | 25.8 | 3.8 | 1.02 | 80 | 22.1 | |
| Cascot B-2 | 581 | 1030 | 41-41 | 33.5 | 24.9 | 646 | 5.33 | 39.1 | 7.08 | 11.0 | 28.7 | 3.6 | 1.07 | 75 | 22.1 | |
| GSA 71 | 578 | 1169 | 51-51 | 33.0 | 21.9 | 796 | 5.57 | 36.2 | 6.99 | 12.3 | 27.9 | 3.1 | 1.01 | 76 | 22.8 | |
| Coker 4360 | 577 | 996 | 51-41 | 32.5 | 23.5 | 712 | 4.82 | 37.5 | 6.80 | 11.3 | 25.8 | 3.3 | 1.00 | 78 | 23.8 | |
| Macna 700 | 575 | 1113 | 41-41 | 33.0 | 23.4 | 649 | 5.54 | 34.0 | 5.91 | 11.4 | 31.2 | 3.6 | 1.00 | 78 | 22.8 | |
| S.W.S. 2 | 574 | 1148 | 51-51 | 33.5 | 22.3 | 709 | 5.36 | 36.1 | 6.24 | 11.0 | 30.1 | 3.2 | 1.04 | 76 | 21.1 | |
| All-Tex Wiltmaster 569 | 574 | 1207 | 51-51 | 34.0 | 22.2 | 708 | 5.11 | 36.1 | 7.02 | 12.3 | 25.7 | 3.5 | 1.08 | 80 | 26.5 | |
| Pioneer Brand X1140 | 572 | 1116 | 51-41 | 33.5 | 24.3 | 670 | 5.17 | 35.6 | 6.08 | 11.0 | 29.4 | 3.1 | 1.03 | 76 | 22.1 | |
| Dunn 120 | 572 | 1106 | 41-51 | 33.5 | 23.8 | 700 | 5.40 | 36.1 | 6.79 | 12.0 | 28.9 | 3.2 | 1.08 | 76 | 22.0 | |
| Pioneer Brand PR 68 | 571 | 1123 | 41-41 | 33.0 | 22.6 | 637 | 5.20 | 36.5 | 6.53 | 11.4 | 28.2 | 3.1 | 1.07 | 76 | 22.0 | |
| Dunn 224 | 569 | 1088 | 51-41 | 33.0 | 23.6 | 708 | 5.41 | 36.5 | 7.02 | 12.2 | 27.3 | 3.1 | 1.04 | 76 | 23.0 | |
| GSA 177 VW | 561 | 1266 | 51-51 | 34.0 | 20.8 | 786 | 4.65 | 35.7 | 6.86 | 12.4 | 23.5 | 3.4 | 1.07 | 80 | 25.5 | |
| Deltapine SR-2 | 559 | 1224 | 41-51 | 32.5 | 23.3 | 722 | 5.63 | 33.4 | 5.57 | 11.1 | 32.9 | 3.3 | 1.03 | 78 | 23.1 | |
| Brownfield S&D H220 | 557 | 1071 | 51-51 | 35.0 | 21.0 | 774 | 5.29 | 35.6 | 6.91 | 12.5 | 26.4 | 3.3 | 1.15 | 79 | 26.5 | |
| GSA 74 | 556 | 1025 | 51-41 | 34.5 | 23.5 | 646 | 4.84 | 35.5 | 5.39 | 9.8 | 31.1 | 3.6 | 1.09 | 78 | 22.4 | |
| Mor-Cot M-72 | 553 | 1149 | 51-51 | 34.0 | 23.4 | 715 | 5.03 | 33.9 | 6.08 | 11.9 | 27.2 | 3.5 | 1.05 | 77 | 24.4 | |
| McNair 308 | 552 | 1142 | 41-41 | 34.0 | 23.8 | 626 | 5.08 | 35.3 | 6.65 | 12.2 | 26.2 | 3.4 | 1.07 | 76 | 23.4 | |
| Deltapine SR-4 | 552 | 1108 | 51-51 | 33.5 | 23.1 | 738 | 4.34 | 36.3 | 5.62 | 9.9 | 27.2 | 3.2 | 1.03 | 77 | 22.6 | |
| Paymaster 4298 | 551 | 1266 | 41-51 | 35.0 | 20.2 | 883 | 6.07 | 35.3 | 7.42 | 13.5 | 28.2 | 3.5 | 1.13 | 76 | 22.6 | |
| S.W.S. 5 | 544 | 1089 | 51-41 | 34.0 | 22.5 | 697 | 5.71 | 37.7 | 8.11 | 13.4 | 25.8 | 3.6 | 1.05 | 77 | 25.3 | |
| Coker 310 | 543 | 1037 | 51-51 | 35.0 | 21.8 | 803 | 4.88 | 36.3 | 6.27 | 11.0 | 27.4 | 3.0 | 1.11 | 74 | 22.4 | |
| D&PL 6856-980-02-210 | 537 | 1102 | 51-61 | 33.5 | 22.9 | 744 | 5.42 | 36.1 | 6.66 | 11.8 | 28.6 | 3.1 | 1.05 | 77 | 23.1 | |
| GSA 75 | 536 | 1105 | 51-51 | 33.5 | 22.0 | 718 | 5.64 | 35.8 | 7.05 | 12.7 | 27.8 | 3.4 | 1.05 | 77 | 24.0 | |
| Brownfield S&D H221 | 536 | 1094 | 51-41 | 34.0 | 22.5 | 692 | 4.88 | 34.2 | 6.41 | 12.3 | 25.3 | 3.4 | 1.08 | 79 | 25.0 | |
| Ring-Around B-18 | 533 | 1119 | 51-41 | 33.0 | 23.5 | 643 | 5.04 | 34.2 | 5.40 | 10.4 | 31.0 | 3.1 | 1.04 | 76 | 21.8 | |
| Western 44 | 533 | 1147 | 51-51 | 32.5 | 22.4 | 776 | 5.11 | 36.0 | 6.32 | 11.2 | 28.3 | 3.0 | 0.98 | 75 | 22.5 | |
| Coker 5110 | 528 | 938 | 51-51 | 33.5 | 22.1 | 791 | 4.71 | 36.7 | 6.27 | 10.8 | 26.8 | 3.0 | 1.07 | 75 | 22.9 | |
| Coker 348 | 528 | 1109 | 50-41 | 33.5 | 22.2 | 782 | 5.68 | 34.1 | 6.85 | 13.2 | 27.4 | 3.5 | 1.09 | 77 | 24.6 | |
| Dunn 118 | 520 | 1072 | 51-51 | 34.5 | 23.3 | 722 | 5.86 | 34.7 | 7.32 | 13.7 | 27.0 | 3.6 | 1.12 | 79 | 26.8 | |
| Macna 1100 | 510 | 1040 | 51-51 | 33.0 | 22.5 | 694 | 4.97 | 34.6 | 5.98 | 11.3 | 27.9 | 3.4 | 0.98 | 77 | 23.6 | |
| Stoneville 213 | 505 | 1010 | 51-41 | 34.0 | 23.0 | 733 | 4.40 | 35.0 | 5.74 | 10.7 | 26.1 | 3.5 | 1.06 | 77 | 23.8 | |
| Acala S.J. 5 | 505 | 942 | 51-50 | 34.5 | 21.8 | 806 | 5.40 | 37.1 | 6.82 | 11.6 | 28.5 | 3.4 | 1.12 | 79 | 24.6 | |
| Lockett 22 | 501 | 922 | 51-51 | 34.0 | 23.5 | 715 | 5.24 | 34.8 | 6.36 | 11.9 | 27.8 | 3.4 | 1.05 | 77 | 22.4 | |
| Lankart LX-571 | 493 | 933 | 51-51 | 34.0 | 24.3 | 671 | 6.24 | 36.1 | 7.25 | 12.8 | 30.1 | 3.0 | 1.06 | 75 | 22.8 | |
| Dunn 119 | 492 | 1048 | 51-41 | 34.0 | 20.9 | 856 | 6.23 | 35.8 | 7.72 | 13.8 | 28.1 | 3.4 | 1.11 | 77 | 25.8 | |
| Macna WR-2 | 490 | 894 | 41-51 | 33.0 | 23.7 | 633 | 5.89 | 35.8 | 6.97 | 12.5 | 29.4 | 3.4 | 0.99 | 77 | 22.1 | |
| Paymaster 467 | 484 | 1070 | 51-51 | 32.0 | 20.3 | 822 | 5.29 | 32.9 | 5.88 | 12.0 | 28.7 | 4.0 | 1.00 | 81 | 24.1 | |
| L.S.D. | 104 | 203 | | 1.4 | 2.6 | 147 | 0.74 | 3.0 | 0.97 | 0.7 | 4.4 | 0.5 | 0.05 | 2.4 | 2.2 | |

50 BOLL SAMPLES

AVERAGE BOLL

| Variety-Strain | Locks Per Boll | Lint Wt. Per Boll | Seed Wt. Per Boll | Total % Lint | % Lint of Seed Cotton |
|----------------------|-------------------|----------------------|----------------------|-----------------|--------------------------|
| SSA 75 | 4.36 | 2.36 | 4.24 | 27 | 35 |
| SSA 71 | 4.58 | 2.18 | 3.78 | 27 | 36 |
| PM 303 | 4.72 | 2.40 | 3.94 | 29 | 38 |
| Stripper 31A | 4.40 | 2.04 | 3.48 | 29 | 37 |
| SSA 78 VM177, 76-120 | 4.30 | 2.12 | 3.64 | 27 | 37 |
| SSA 78 VM177, 76-120 | 4.24 | 2.14 | 3.08 | 31 | 40 |
| Means | 4.43 | 2.21 | 3.69 | 28.33 | 37.17 |

FOUR LOCK BOLL

| Variety | Number Bolls | Lint Wt. Per Boll | Seed Wt. Per Boll | Total % Lint | % Lint of Seed Cotton |
|----------------------|-----------------|----------------------|----------------------|-----------------|--------------------------|
| SSA 75 | 32 | 2.25 | 4.06 | 27 | 35 |
| SSA 71 | 21 | 1.95 | 3.48 | 27 | 35 |
| PM 303 | 14 | 2.07 | 3.50 | 29 | 37 |
| Stripper 31A | 30 | 1.93 | 3.27 | 29 | 37 |
| SSA 78 VM177, 76-120 | 70 | 2.03 | 3.50 | 27 | 37 |
| SSA 78 VM177, 76-120 | 38 | 2.05 | 2.92 | 31 | 40 |
| Means | 34.17 | 2.05 | 3.46 | 28.33 | 36.83 |

FIVE LOCK BOLL

| Variety | Number Bolls | Lint Wt. Per Boll | Seed Wt. Per Boll | Total % Lint | % Lint of Seed Cotton |
|----------------------|-----------------|----------------------|----------------------|-----------------|--------------------------|
| SSA 75 | 18 | 2.56 | 4.56 | 28 | 35 |
| SSA 71 | 29 | 2.34 | 4.00 | 27 | 36 |
| PM 303 | 36 | 2.53 | 4.11 | 29 | 38 |
| Stripper 31A | 20 | 2.20 | 3.80 | 29 | 37 |
| SSA 78 VM177, 76-120 | 30 | 2.33 | 3.97 | 27 | 37 |
| SSA 78 VM177, 76-120 | 12 | 2.42 | 3.31 | 31 | 39 |
| Means | 24.17 | 2.40 | 3.96 | 28.50 | 37.0 |

7900071



GROWERS SEED ASSOCIATION

P.O. BOX 1656 LUBBOCK, TEXAS 79408 TEL. 806-747-4125

TWX 910-896-4381-GROWERSEED LBK

EXHIBIT D

ADDITIONAL DESCRIPTION OF THE VARIETY

The new variety of cotton, GSA 74, is unique in its adaptation to superior production on the High Plains of Texas. The environment for cotton is a comparatively short growing season at a higher altitude than common in the Cotton Belt. GSA 74, has an open foliage canopy naturally and beginning in the early formation of bolls the leaf edges tend to curve upward slightly forming a slight depression in the center of the leaf opening further the canopy to penetration of direct sunlight stimulating more rapid development of fruit forms- more rapid development of bolls and hastening maturity in the latter part of the fruiting season. The fiber maturity develops more rapidly.

The seeds of GSA 74 have an unusually high oil content, high ammonia content, and high protein content. *see attached table with analyses.*

ASSIGNMENT OF
CERTIFICATES AND APPLICATIONS OF PLANT VARIETY PROTECTION

WHEREAS, GROWERS SEED ASSOCIATION, a Marketing Cooperative Association organized under the laws of the State of Texas, whose address is P.O. Box 1656, Lubbock, Texas 79408, did make applications for Certificates of Plant Variety Protection with the Plant Variety Protection Office of the United States Department of Agriculture which Applications and Certificates are numbered and bear the dates as follows:

| | | |
|---------------------|--------------------|------------------|
| 7400089 | November 24, 1975 | for 'GSA 71' |
| 76TQ007 | March 18, 1977 | for 'GSA 75' |
| 710051 | September 30, 1974 | for Blanco 3363 |
| 740088 | November 24, 1975 | for Stripper 31A |
| 790071 | April 24, 1980 | for 'GSA 74' |
| Pending Application | | for 'GSA 78' |

WHEREAS, GROWERS SEED ASSOCIATION is the sole and exclusive owner of said Applications and Certificates of Plant Variety Protection, and all interests therein, to and under the same and have the sole right to make this assignment; and

WHEREAS, TEXAS BANK FOR COOPERATIVES, a corporation organized under the laws of the United States of America, whose mailing address is P.O. Box 1424, Houston, Texas 77001, is desirous of acquiring the entire right, title and interest in and to the said Applications and Certificates of Plant Variety Protection;

NOW, THEREFORE, in consideration of and exchange for the sum of Ten Dollars and no/100 (\$10.00) paid in hand by GROWERS SEED ASSOCIATION, and other good and valuable consideration, in receipt of which is hereby acknowledged, GROWERS SEED ASSOCIATION, has sold, assigned, transferred and sent over to the TEXAS BANK FOR COOPERATIVES, the said Applications and Certificates of Plant Variety Protection, the same to be held and enjoyed by the TEXAS BANK FOR COOPERATIVES for its own use and enjoyment and the use and enjoyment of its successors, assigns or other legal representatives, to the end of the term for which said Applications and Certificates of Plant Variety Protection are granted or reissued, as fully and entirely as the same would have been held and enjoyed by GROWERS SEED ASSOCIATION if this assignment and sale had not been made, together with all claims for damages by reason of past infringement of said Applications and Certificates

for the use and enjoyment of its successors, assigns or other legal representatives.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this 28th day of July, 1981.

GROWERS SEED ASSOCIATION

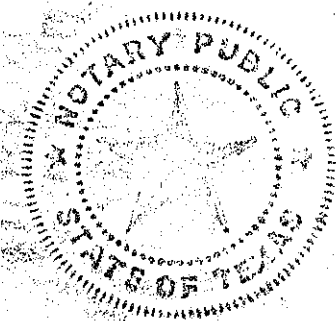
By R. D. McCallister
Chairman

THE STATE OF TEXAS |

COUNTY OF LUBBOCK

BEFORE ME, the undersigned authority, on this day personally appeared R. D. McCallister, Chairman of GROWERS SEED ASSOCIATION, a corporation, who acknowledged to me that he executed the above and foregoing instrument as the act and deed of said corporation and for the purposes and consideration therein expressed and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 28th day of July, 1981.



C. C. Bloodworth
Notary Public in and for LUBBOCK
County, T E X A S.
C. C. Bloodworth

Expires 5-21-84

ASSIGNMENT OF
PLANT VARIETY PROTECTION CERTIFICATES

WHEREAS, GROWERS SEED ASSOCIATION, a marketing cooperative association organized under the terms of the State of Texas, whose address is P.O. Box 1656, Lubbock, Texas 79408, did make applications for and secure Certificates of Registration with the United States Plant Variety Protection Office which Certificates are numbered and bear the dates as follows:

| <u>Plant Variety Registration No.</u> | <u>Variety</u> | <u>Filing Date</u> |
|---------------------------------------|------------------|--------------------|
| 7400089 | for 'GSA 71' | November 24, 1975 |
| 76TQ007 | for 'GSA 75' | March 18, 1977 |
| 7100051 | for Blanco 3363 | September 30, 1974 |
| 7400088 | for Stripper 31A | November 24, 1975 |
| 7900071 | for 'GSA 74' | April 24, 1980 |
| 7900072 | for 'GSA 78' | June 19, 1980 |

WHEREAS, the TEXAS BANK FOR COOPERATIVES, a bank for cooperatives duly organized under the Farm Credit Act as amended, whose mailing address is P.O. Box 1424, Houston, Texas 77001, is the owner and holder of certain indebtedness of GROWERS SEED ASSOCIATION which are secured by certain liens and security interests including but not limited to general intangibles consisting of all trade names, trademarks, service marks, goodwill, germ plasm, proprietary seed rights, trade secrets, and all seed varieties and hybrids (the "Property"); and

WHEREAS, the maturity of the indebtednesses has now been accelerated and is now past due and owing and the TEXAS BANK FOR COOPERATIVES has taken possession of the collateral covered by the security instruments, and has the right pursuant to the security instruments and applicable laws

to pursue its remedies against the collateral, including without limitation, the selling and offering for sale thereof, as provided for under the security instruments and applicable law; and

WHEREAS, the TEXAS BANK FOR COOPERATIVES, as secured party, has exercised its right in the collateral of GROWERS SEED ASSOCIATION, as debtor, and is now desirous of selling certain items of collateral under lien at a private sale pursuant to Article 9 of the Texas Business and Commerce Code; and

WHEREAS, the TEXAS BANK FOR COOPERATIVES has the sole right to make this assignment; and

WHEREAS, AGRIGENETICS CORPORATION ("Buyer"), a corporation organized under the laws of the State of New Mexico, whose mailing address is 14142 W. 20th Avenue, Golden, Colorado 80401, is desirous of acquiring the entire right, title and interest in and to general intangibles formerly owned by GROWERS SEED ASSOCIATION together with the Certificates of Plant Variety Protection as identified from the TEXAS BANK FOR COOPERATIVES ("Seller"), through such a private sale under Article 9 of the Texas Business and Commerce Code.

NOW, THEREFORE, in consideration of and exchange for the sum of Ten and No/100 Dollars (\$10.00) paid in hand by Buyer, and other good and valuable considerations, the receipt and sufficiency of which is hereby acknowledged, the Seller, as secured party, has sold, assigned, transferred and sent over, through a private sale under Article 9 of the Texas Business and Commerce Code, to Buyer, all the Seller's interest and all the GROWERS SEED ASSOCIATION'S interest in the above-described Certificates of Plant Variety Protection and that part of the goodwill of the business connected

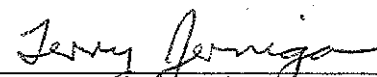
with the use of and symbolized by the Certificates, the same to be held and enjoyed by Buyer for its own use and enjoyment and the use and enjoyment of its successors, assigned by other legal representatives, and as it relates to the referenced Certificate, to enjoy to the end of the term for which said Certificates are granted or renewed, as fully and entirely as the same would have been held and enjoyed by TEXAS BANK FOR COOPERATIVES and GROWERS SEED ASSOCIATION if this assignment and sale had not been made, together with all claims for damages by reason of past infringement of said collateral or registrations with the right to sue for and collect the same for its own use and enjoyment of its successors, assigns or other legal representatives. Seller makes only those warranties and representations contained in Section 3.1 of the Asset Purchase Agreement dated December 9, 1981 between TEXAS BANK FOR COOPERATIVES and AGRIGENETICS CORPORATION.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this 9th day of December, 1981.

ATTEST:

TEXAS BANK FOR
COOPERATIVES


Assistant Corporate Secretary

By: 
Assistant Vice President

THE STATE OF TEXAS §
 §
COUNTY OF DALLAS §

BEFORE ME, the undersigned authority, on this day personally appeared Assistant Vice President of TEXAS BANK FOR COOPERATIVES, known to me to be the person and officer whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the 9th day of December, A.D., 1981.

Carolyn G. Farmer
NOTARY PUBLIC IN AND FOR
THE STATE OF TEXAS

My Commission Expires:

10-22-85

Carolyn G. Farmer

ASSIGNMENT OF CERTIFICATES AND
APPLICATIONS OF PLANT VARIETY PROTECTION

WHEREAS, GROWERS SEED ASSOCIATION, a Marketing Cooperative Association organized under the terms of the State of Texas, whose address is P.O. Box 1656, Lubbock, Texas 79408, did make applications for Certificates of Plant Variety Protection with the Plant Variety Protection Office of the United States Department of Agriculture which Applications and Certificates are numbered and bear the dates as follows:

| | | |
|---------|--------------------|------------------|
| 7400089 | November 24, 1975 | for 'GSA 71' |
| 76TQ007 | March 18, 1977 | for 'GSA 75' |
| 7100051 | September 30, 1974 | for Blanco 3363 |
| 7400088 | November 24, 1975 | for Stripper 31A |
| 7900071 | April 24, 1980 | for 'GSA 74' |
| 7900072 | June 19, 1980 | for 'GSA 78' |

WHEREAS, GROWERS SEED ASSOCIATION sold, assigned, transferred and sent over to the TEXAS BANK FOR COOPERATIVES, a corporation organized under the laws of the United States of America, whose mailing address is P.O. Box 1424, Houston, Texas 77001, all right, title and interest in and to the said Applications and Certificates of Plant Variety Protection pursuant to an assignment dated July 28, 1981;

WHEREAS, TEXAS BANK FOR COOPERATIVES is now the sole and exclusive owner of said Applications and Certificates of Plant Variety Protection, and all interests therein, to and under the same and has the sole right to make this assignment;

WHEREAS, AGRIGENETICS CORPORATION, a corporation organized under the laws of the State of New Mexico, whose mailing address is 624 27th Street, Lubbock, Texas 79404, is desirous of acquiring the entire

right, title and interest in and to the said Applications and Certificates of Plant Variety Protection; and

WHEREAS, GROWERS SEED ASSOCIATION acknowledges TEXAS BANK FOR COOPERATIVES' right to assign the said Applications and Certificates of Plant Variety Protection and GROWERS SEED ASSOCIATION desires to join in the assignment of all right, title and interest in and to the said Applications and Certificates of Plant Variety Protection in order to transfer any and all right, title or interest it may have in the same to AGRIGENETICS CORPORATION and to resolve any uncertainty which may exist as to the true and lawful owner of the said Applications and Certificates of Plant Variety Protection (e.g. AGRIGENETICS CORPORATION);

NOW, THEREFORE, in consideration of and exchange for the sum of One and No/100 Dollars (\$1.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, GROWERS SEED ASSOCIATION, has sold, assigned, transferred and sent over to AGRIGENETICS CORPORATION, all its right, title and interest in and to the said Applications and Certificates of Plant Variety Protection, the same to be held and enjoyed by the AGRIGENETICS CORPORATION for its own use and enjoyment and the use and enjoyment of its successors, assigns or other legal representatives, to the end of the term for which said Applications and Certificates of Plant Variety Protection are granted or reissued, as fully and entirely as the same would have been held and enjoyed by GROWERS SEED ASSOCIATION and the TEXAS BANK FOR COOPERATIVES if this assignment and sale had not been made, together with all claims for damages by reason of past infringement of said Applications and Certificates with the right to

sue for and collect the same for its own use and enjoyment and for the use and enjoyment of its successors, assigns or other legal representatives.

Growers warrants and represents the following, to-wit:

(i) To the best knowledge and belief of Growers, the Bank has validly and lawfully taken possession of the said Applications and Certificates of Plant Variety Protection pursuant to applicable provisions of the Texas Business and Commerce Code and agreements with Growers;

(ii) To the best knowledge and belief of Growers, the Bank's security interest giving rise to its possession of the said Applications and Certificates of Plant Variety Protection was a valid, prior and perfected security interest; and

(iii) To the best knowledge and belief of Growers, other than those previously communicated to Buyer in writing, there are no persons other than Growers or the Bank who have had or presently have any interest in the said Applications and Certificates of Plant Variety Protection nor does there exist any other facts which prevent Buyer from obtaining, pursuant to the terms, the execution and the delivery of this Bill of Sale, good and marketable title to the said Applications and Certificates of Plant Variety Protection, free and clear of all liens, pledges, charges and encumbrances whatsoever.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this
15 day of December, 1981.

GROWERS SEED ASSOCIATION

By: R.D.M. Callister
Its: Chairman of Board

THE STATE OF TEXAS §
 §
COUNTY OF LUBBOCK §

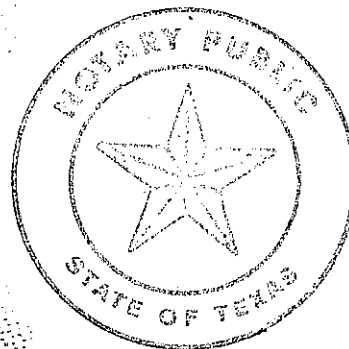
BEFORE ME, the undersigned authority, on this day personally
appeared R.D. McCallister, ^{CHAIRMAN} OF BOARD of GROWERS SEED
ASSOCIATION, a cooperative association, who acknowledged to me that he
executed the above and foregoing instrument as the act and deed of said
association and for the purposes and consideration therein expressed and in
the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 15 day of
December, 1981.

Stephen L. Shanklin
NOTARY PUBLIC IN AND FOR
THE STATE OF TEXAS

My commission expires:

4-3-85



STEPHEN L. SHANKLIN

CERTIFICATES AND APPLICATIONS OF PLANT VARIETY PROTECTION

ASSIGNMENT AND SECURITY AGREEMENT

I. Parties, Collateral, and Other Obligations

THIS SECURITY AGREEMENT dated December 9, 1981 between AGRIGENETICS CORPORATION, a corporation duly organized under the laws of the State of New Mexico (the "Corporation"), having a mailing address at 14142 W. 20th Avenue, Golden, Colorado 80401 and the TEXAS BANK FOR COOPERATIVES (the "Bank") having a mailing address at P.O. Box 1424, Houston, Harris County, Texas.

PURSUANT to the terms and provisions of the Repayment Agreement of even date herewith between Corporation and the Bank, the Bank has agreed to lend to Corporation the sum of One Million Five Hundred Thousand and no/100 Dollars (\$1,500,000.00) at any time outstanding, and part of the inducement for the Bank to make such loan is the execution by Corporation of the Security Agreement of even date herewith (the "Agreement"), and this Security Agreement for filing with the Plant Variety Protection Office of the United States Department of Agriculture, such indebtednesses to be evidenced by promissory note ("Note") of even date herewith payable to the order of the Bank, and payment of the Note and any other Obligations of Corporation to the Bank pursuant to the Repayment Agreement of even date herewith are to be secured by, among other things, the security interests created hereby.

NOW, THEREFORE, in consideration of the premises, and as an inducement to the Bank to enter into the Repayment Agreement and to make the loans contemplated thereby, the Corporation hereby agrees with the Bank as follows: In order to secure payment of the Note and other Obligations (as defined in the Agreement), the Corporation hereby pledges, assigns and grants to the Bank a continuing security interest in and lien on all of the Applications and Certificates of Plant Variety Protection made with the Plant Variety Protection Office of the U.S. Department of Agriculture which Applications and Certificates are numbered and bear the dates as listed below with the

7100051
7400088
7900071
7900072

September 30, 1974
November 24, 1975
April 24, 1980
June 19, 1980

for Blanco 3363
for Stripper 31A
for 'GSA 74'
for 'GSA 78'

II. Prosecution and Maintenance of Trademarks

Corporation shall diligently apply for, prosecute, maintain and preserve its rights in the above trademarks, all expenses of which shall be borne by Corporation.

III. Termination

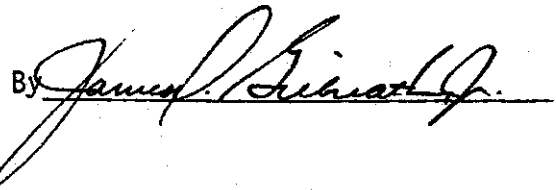
Upon the payment in full of all accounts due under the Note and all other Obligations of the Corporation due under the Agreement and this Security Agreement to the Bank, the Bank shall execute and deliver to the Corporation all such documents and instruments as shall be necessary to evidence termination of this Agreement.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be duly executed by their authorized representatives as of the date first above written.

ATTEST:

AGRIGENETICS CORPORATION



Secretary

By 

THE STATE OF TEXAS
COUNTY OF Dallas

BEFORE ME, the undersigned authority, on this day personally appeared James O. Gilbreath Jr., Vice President of Agrigenetics Corporation known to me to be the person and officer whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed, and in the capacity therein shown.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the 9th day of December, A.D., 1981.


Notary Public in and for
County, T E X A S.

THE STATE OF TEXAS

COUNTY OF HARRIS

BEFORE ME, the undersigned authority, on this day personally appeared James O. Gilbreath, Jr., Vice President of Agrigenetics Corporation, known to me to be the person and officer whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed, and in the capacity therein shown.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the 9th day of February, A.D., 1982.


Notary Public in and for Harris
County, T E X A S.

HELEN PAVLAS
Notary Public State of Texas
My Commission Expires January 31, 1985
Bonded by L. Alexander Lovett, Lawyers Surety Corp.

7900071

State of Colorado)
) ss
County of Boulder)

CERTIFICATE

I, Andrea Ryder, a notary public in and for the aforesaid county and state, hereby certify that the attached photocopy of an Assignment of Certificates and Applications of Plant Variety Protection is a true copy of the original thereof.



Notary Public

My commission expires August 16, 1988.

ASSIGNMENT OF CERTIFICATES AND
APPLICATIONS OF PLANT VARIETY PROTECTION

WHEREAS, GROWERS SEED ASSOCIATION, a Marketing Cooperative Association organized under the terms of the State of Texas, whose address is P.O. Box 1656, Lubbock, Texas 79408, did make applications for Certificates of Plant Variety Protection with the Plant Variety Protection Office of the United States Department of Agriculture which Applications and Certificates are numbered and bear the dates as follows:

| | | |
|---------|--------------------|------------------|
| 7400089 | November 24, 1975 | for 'GSA 71' |
| 76TQ007 | March 18, 1977 | for 'GSA 75' |
| 7100051 | September 30, 1974 | for Blanco 3363 |
| 7400088 | November 24, 1975 | for Stripper 31A |
| 7900071 | April 24, 1980 | for 'GSA 74' |
| 7900072 | June 19, 1980 | for 'GSA 78' |

WHEREAS, GROWERS SEED ASSOCIATION sold, assigned, transferred and sent over to the TEXAS BANK FOR COOPERATIVES, a corporation organized under the laws of the United States of America, whose mailing address is P.O. Box 1424, Houston, Texas 77001, all right, title and interest in and to the said Applications and Certificates of Plant Variety Protection pursuant to an assignment dated July 28, 1981;

WHEREAS, TEXAS BANK FOR COOPERATIVES is now the sole and exclusive owner of said Applications and Certificates of Plant Variety Protection, and all interests therein, to and under the same and has the sole right to make this assignment;

WHEREAS, AGRIGENETICS CORPORATION, a corporation organized under the laws of the State of New Mexico, whose mailing address is 624 27th Street, Lubbock, Texas 79404, is desirous of acquiring the entire

right, title and interest in and to the said Applications and Certificates of Plant Variety Protection; and

WHEREAS, GROWERS SEED ASSOCIATION acknowledges TEXAS BANK FOR COOPERATIVES' right to assign the said Applications and Certificates of Plant Variety Protection and GROWERS SEED ASSOCIATION desires to join in the assignment of all right, title and interest in and to the said Applications and Certificates of Plant Variety Protection in order to transfer any and all right, title or interest it may have in the same to AGRIGENETICS CORPORATION and to resolve any uncertainty which may exist as to the true and lawful owner of the said Applications and Certificates of Plant Variety Protection (e.g. AGRIGENETICS CORPORATION); .

NOW, THEREFORE, in consideration of and exchange for the sum of One and No/100 Dollars (\$1.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, GROWERS SEED ASSOCIATION, has sold, assigned, transferred and sent over to AGRIGENETICS CORPORATION, all its right, title and interest in and to the said Applications and Certificates of Plant Variety Protection, the same to be held and enjoyed by the AGRIGENETICS CORPORATION for its own use and enjoyment and the use and enjoyment of its successors, assigns or other legal representatives, to the end of the term for which said Applications and Certificates of Plant Variety Protection are granted or reissued, as fully and entirely as the same would have been held and enjoyed by GROWERS SEED ASSOCIATION and the TEXAS BANK FOR COOPERATIVES if this assignment and sale had not been made, together with all claims for damages by reason of past infringement of said Applications and Certificates with the right to

sue for and collect the same for its own use and enjoyment and for the use and enjoyment of its successors, assigns or other legal representatives.

Growers warrants and represents the following, to-wit:

(i) To the best knowledge and belief of Growers, the Bank has validly and lawfully taken possession of the said Applications and Certificates of Plant Variety Protection pursuant to applicable provisions of the Texas Business and Commerce Code and agreements with Growers;

(ii) To the best knowledge and belief of Growers, the Bank's security interest giving rise to its possession of the said Applications and Certificates of Plant Variety Protection was a valid, prior and perfected security interest; and

(iii) To the best knowledge and belief of Growers, other than those previously communicated to Buyer in writing, there are no persons other than Growers or the Bank who have had or presently have any interest in the said Applications and Certificates of Plant Variety Protection nor does there exist any other facts which prevent Buyer from obtaining, pursuant to the terms, the execution and the delivery of this Bill of Sale, good and marketable title to the said Applications and Certificates of Plant Variety Protection, free and clear of all liens, pledges, charges and encumbrances whatsoever.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this
15 day of December, 1981.

GROWERS SEED ASSOCIATION

By: R.D.M. Callister
Its: Chairman of Board

THE STATE OF TEXAS §
 §
COUNTY OF LUBBOCK §

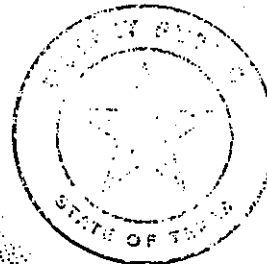
BEFORE ME, the undersigned authority, on this day personally
appeared R.D. McCallister, ^{Chairman} of Board of GROWERS SEED
ASSOCIATION, a cooperative association, who acknowledged to me that he
executed the above and foregoing instrument as the act and deed of said
association and for the purposes and consideration therein expressed and in
the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 15 day of
December, 1981.

Stephen L. Shanklin
NOTARY PUBLIC IN AND FOR
THE STATE OF TEXAS

My commission expires:

4-3-85



STEPHEN L. SHANKLIN

15
16
17
18
19

7900071

State of Colorado)
) ss
County of Boulder)

CERTIFICATE

I, Andrea Ryder, a notary public in and for the aforesaid county and state, hereby certify that the attached photocopy of the Articles of Merger of Agrigenetics Corporation (New Mexico) into Agrigenetics Corporation (Delaware) is a true copy of the original thereof.



Notary Public

My commission expires August 16, 1988.

STATE OF NEW MEXICO

CERTIFICATE OF COMPARISON
OF

AGRIGENETICS CORPORATION

STATE OF NEW MEXICO

I hereby certify that the annexed is a true and complete copy of the 12 page document on file in this office.

DATED: August 31, 1982

STATE CORPORATION COMMISSION

BY: *[Signature]*

This Certification Stamp Replaces Our Previous Certification System.

NMSA 53-18-4 and 53-8-93 Effective 11-1-80



In Testimony Whereof, the State Corporation Commission of the State of New Mexico has caused this certificate to be signed by its Chairman and the seal of said Commission to be affixed at the City of Santa Fe

[Signature]

Chairman

ARTICLES OF MERGER

of

AGRIGENETICS CORPORATION
(New Mexico)

into

AGRIGENETICS CORPORATION
(Delaware)

FILED
STATE OF NEW MEXICO

AUG 31 1982

CORPORATION
FRANCHISE TAX DEPT.

The undersigned officers of Agrigenetics Corporation, a New Mexico corporation, ("Agrigenetics New Mexico") and of Agrigenetics Corporation, a Delaware corporation, ("Agrigenetics Delaware") hereby certify as follows:

1. Agrigenetics New Mexico and Agrigenetics Delaware duly adopted and entered into the Plan and Agreement of Merger, dated August 2, 1982, a copy of which is attached hereto.

2. As to Agrigenetics New Mexico there are and were at all times relevant to the merger 9,580,964 shares of Common Stock, \$.10 par value, outstanding and no shares of Special Class A stock outstanding.

3. As to Agrigenetics Delaware, there were no shares outstanding at the time of the approval of the Plan and Agreement of Merger.

4. As to Agrigenetics New Mexico 8,281,485 shares of Common Stock, \$.10 par value, voted for the Plan and Agreement of Merger and no shares voted against the Plan and Agreement of Merger.

5. As to Agrigenetics Delaware the Plan and Agreement of Merger was duly approved by the Board of Directors pursuant to Delaware law prior to the issuance of any stock.

6. Agrigenetics Delaware hereby agrees that it may be served with process in New Mexico in any proceeding for the enforcement of any obligation of Agrigenetics New Mexico and

in any proceeding for the enforcement of the Plan and Agreement of Merger.

AUG 31 1982

RECEIVED
AUG 31 1982
N. M. ST. CORP. COMM.
CORP. - FRANCHISE TAX DEPTS.

dissenting shareholder of Agrigenetics New Mexico against Agrigenetics Delaware.

7. Agrigenetics Delaware hereby irrevocably appoints the Secretary of State of New Mexico as its agent to accept service of process in any proceeding described in the preceding paragraph.

8. Agrigenetics Delaware will promptly pay to any dissenting shareholders of Agrigenetics New Mexico the amount, if any, to which such dissenting shareholder is entitled under the provisions of the New Mexico Business Corporation Act with respect to the rights of dissenting shareholders.

IN WITNESS WHEREOF, we have executed on behalf of Agrigenetics New Mexico and Agrigenetics Delaware, these Articles of Merger this 31st day of August, 1982.

AGRIGENETICS CORPORATION
A New Mexico Corporation

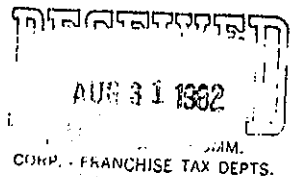
By Murray Robinson
Vice President

By James B. Alby
Secretary

AGRIGENETICS CORPORATION
A Delaware Corporation

By Murray Robinson
Vice President

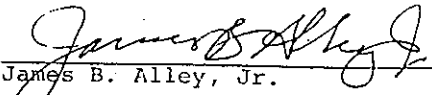
By James B. Alby
Secretary



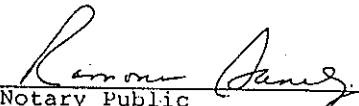
Verification

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

JAMES B. ALLEY, JR., Secretary of Agrigenetics Corporation, a New Mexico corporation, and Secretary of Agrigenetics Corporation, a Delaware corporation, states that he has read the foregoing Articles of Merger and that the statements therein are true and correct to the best of his knowledge and belief.

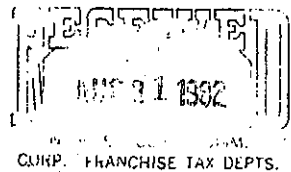

James B. Alley, Jr.

Subscribed and sworn to before me this 31st day of August, 1982.


Notary Public

My Commission expires:

8-22-83



PLAN AND AGREEMENT OF MERGER

THIS PLAN AND AGREEMENT OF MERGER ("Merger Agreement") is made and entered into this 2nd day of August, 1982 by and between AGRIGENETICS CORPORATION, a New Mexico corporation ("Agrigenetics New Mexico"), and AGRIGENETICS CORPORATION, a Delaware corporation and a wholly owned subsidiary of Agrigenetics New Mexico ("Agrigenetics Delaware").

WHEREAS, Agrigenetics New Mexico is a corporation duly organized and existing under the laws of the State of New Mexico;

WHEREAS, Agrigenetics Delaware is a corporation duly organized and existing under the laws of the State of Delaware;

WHEREAS, on the date of this Merger Agreement Agrigenetics New Mexico has authority to issue twenty million four hundred fifty thousand shares, consisting of four hundred fifty thousand shares of Special Class A Stock, par value \$.10 per share ("New Mexico Special Class A Stock"), of which no shares are issued and outstanding; and twenty million shares of Common Stock, par value \$.10 per share ("New Mexico Common Stock"), of which 9,580,964 shares are issued and outstanding;

WHEREAS, on the date of this Merger Agreement Agrigenetics Delaware has authority to issue twenty-one million shares, consisting of one million shares of Special Class A Stock \$.10 par value ("Delaware Special Class A Stock"), of which no shares are issued and outstanding; and twenty million shares of Common Stock, par value \$.10 per share ("Delaware Common Stock"), of which ten shares are issued and outstanding and owned by Agrigenetics New Mexico;

WHEREAS, the respective Boards of Directors of Agrigenetics New Mexico and Agrigenetics Delaware have determined that it is advisable and to the advantage of said two corporations that Agrigenetics New Mexico merge into Agrigenetics Delaware upon the terms and conditions herein provided for the purpose of effecting the reincorporation of Agrigenetics New Mexico in the State of Delaware; and

WHEREAS, the respective Boards of Directors of Agrigenetics New Mexico and Agrigenetics Delaware have approved this Merger Agreement and the board of directors of Agrigenetics New Mexico has directed that this Merger Agreement be submitted to a vote of the shareholders of Agrigenetics New Mexico;

AUG 31 1982

NOW, THEREFORE, in consideration of the mutual agreements and covenants set forth herein, Agrigenetics New Mexico and Agrigenetics Delaware hereby agree to merge as follows:

1. Merger. Agrigenetics New Mexico shall be merged with and into Agrigenetics Delaware, and Agrigenetics Delaware shall survive the merger ("Merger"). The Merger shall become effective upon the time and date of filing of such documents as may be required under applicable law ("Effective Date").

2. Directors and Officers and Governing Documents. The directors and officers of Agrigenetics Delaware shall be the same upon the Effective Date as they are immediately prior thereto. The Certificate of Incorporation of Agrigenetics Delaware, as in effect on the Effective Date, shall continue to be the Certificate of Incorporation of Agrigenetics Delaware as the surviving corporation without change or amendment until further amended in accordance with the provisions thereof and applicable laws. The By-Laws of Agrigenetics Delaware, as in effect on the Effective Date, shall continue to be the By-Laws of Agrigenetics Delaware as the surviving corporation without change or amendment until further amended in accordance with the provisions thereof and applicable laws.

3. Succession. On the Effective Date, Agrigenetics Delaware shall succeed to all the rights and obligations of Agrigenetics New Mexico and shall possess all the rights, privileges, powers and franchises as well of a public as of a private nature, and be subject to all the restrictions, disabilities and duties of Agrigenetics New Mexico; and all and singular, the rights, privileges, powers and franchises of Agrigenetics New Mexico, and all property, real, personal and mixed, and all debts due to Agrigenetics New Mexico on whatever account, as well for stock subscriptions as all other things in action or belonging to Agrigenetics New Mexico shall be vested in Agrigenetics Delaware; and all property, rights, privileges, powers and franchises, and all and every other interest shall be thereafter as effectually the property of Agrigenetics Delaware as they were of Agrigenetics New Mexico, and the title to any real estate vested by deed or otherwise in Agrigenetics New Mexico, shall not revert or be in any way impaired; but all rights of creditors and all liens upon any property of Agrigenetics New Mexico shall be preserved unimpaired, and all debts, liabilities and duties of Agrigenetics New Mexico shall thenceforth attach to Agrigenetics Delaware, and may be enforced against it to the same extent as if said debts, liabilities and duties had been incurred or contracted by it. All corporate acts, plans, policies, agreements, arrangements, approvals and authorizations of Agrigenetics New Mexico, its shareholders, board of directors and committees thereof, officers and agents which were valid and effective immediately prior

to the Effective Date, shall be taken for all purposes as the acts, plans, policies, agreements, arrangements, approvals and authorizations of Agrigenetics Delaware and shall be as effective and binding thereon as the same were with respect to Agrigenetics New Mexico. The employees and agents of Agrigenetics New Mexico shall become the employees and agents of Agrigenetics Delaware and continue to be entitled to the same rights and benefits which they enjoyed as employees and agents of Agrigenetics New Mexico. The requirements of any plans or agreements of Agrigenetics New Mexico involving the issuance or purchase by Agrigenetics New Mexico of certain shares of its capital stock shall be satisfied by the issuance or purchase of a like number of shares of Agrigenetics Delaware.

4. Further Assurances. From time to time, as and when required by Agrigenetics Delaware or by its successors and assigns, there shall be executed and delivered on behalf of Agrigenetics New Mexico such deeds and other instruments, and there shall be taken or caused to be taken by it all such further and other action, as shall be appropriate or necessary in order to vest, perfect or confirm, of record or otherwise, in Agrigenetics Delaware the title to and possession of all property, interests, assets, rights, privileges, immunities, powers, franchises and authority of Agrigenetics New Mexico, and otherwise to carry out the purposes of this Merger Agreement, and the officers and directors of Agrigenetics Delaware are fully authorized in the name and on behalf of Agrigenetics New Mexico or otherwise to take any and all such action and to execute and deliver any and all such deeds and other instruments.

5. Stock of Agrigenetics New Mexico. Upon the Effective Date, by virtue of the Merger and without any action on the part of the holder hereof, each share of the New Mexico Common Stock outstanding immediately prior thereto shall be changed and converted into and shall be one fully paid and nonassessable share of the Delaware Common Stock.

6. Stock Certificates. On and after the Effective Date, all of the outstanding certificates which immediately prior to the Effective Date represented shares of New Mexico Common Stock shall be deemed for all purposes to evidence ownership of, and to represent, shares of Delaware Common Stock into which the shares of New Mexico Common Stock formerly represented by such certificates have been converted as herein provided. The registered owner on the books and records of Agrigenetics Delaware or its transfer agents of any such outstanding stock certificate shall, until such certificate shall have been surrendered for transfer or otherwise accounted for to Agrigenetics Delaware or its transfer agents, have and be entitled to exercise any voting and other rights with respect to and to receive any dividend and other distributions upon the shares of Agrigenetics

Delaware Common Stock evidenced by such outstanding certificate as above provided.

7. Outstanding Options (Class A). Forthwith upon the Effective Date, each outstanding option to purchase shares of New Mexico Special Class A Stock granted under Agrigenetics New Mexico's Incentive Stock Option Plan (the "Plan") shall be converted into and become an option to purchase the same number of shares of Delaware Special Class A Stock at the same option price per share, and upon the same terms and subject to the same conditions as set forth in the Plan, as in effect on the Effective Date. The same number of shares of Delaware Special Class A Stock shall be reserved for purposes of the Plan as is equal to the number of shares of New Mexico Special Class A Stock so reserved as of the Effective Date. As of the Effective Date, Agrigenetics Delaware shall assume all obligations of Agrigenetics New Mexico under the Plan and the outstanding options or portions thereof granted pursuant to the Plan.

8. Outstanding Warrants (Common). Forthwith upon the Effective Date, any outstanding warrants or other options to purchase shares of New Mexico Common Stock shall entitle the holders to purchase the same number of shares of Delaware Common Stock upon the same terms and conditions as provided in the outstanding warrants or other applicable documents to which Agrigenetics New Mexico is a party.

9. Employee Benefit Plans. As of the Effective Date, Agrigenetics Delaware hereby assumes all obligations of Agrigenetics New Mexico under any and all employee benefit plans in effect as of said date or with respect to which employee rights or accrued benefits are outstanding as of said date.

10. Common Stock of Agrigenetics Delaware. Forthwith upon the Effective Date, the ten shares of Delaware Common Stock presently issued and outstanding in the name of Agrigenetics New Mexico shall be cancelled and retired and resume the status of authorized and unissued shares of Delaware Common Stock, and no shares of Delaware Common Stock or other securities of Agrigenetics Delaware shall be issued in respect thereof.

11. Covenants of Agrigenetics Delaware. Agrigenetics Delaware covenants and agrees that it will, on or before the Effective Date:

(a) Qualify to do business as a foreign corporation in the State of New Mexico, and in connection therewith irrevocably appoint an agent for service of process as required under the provision of Section 54-17-9 of the New Mexico Business Corporation Act.

(b) File any and all documents with the New Mexico State Corporation Commission necessary to the assumption by Agrigenetics Delaware of all the franchise tax liabilities of Agrigenetics New Mexico.

(c) Qualify to do business as a foreign corporation in the states where Agrigenetics New Mexico is qualified to do business and such other states as the board of directors deems necessary or desirable.

12. Book Entries. As of the Effective Date, entries shall be made upon the books of Agrigenetics Delaware in accordance with the following:

(a) The assets and liabilities of Agrigenetics Delaware shall be recorded at the same amounts at which they were carried on the books of Agrigenetics New Mexico immediately prior to the Effective Date, with appropriate adjustments to reflect the retirement of the ten shares of Delaware Common Stock presently issued and outstanding.

(b) There shall be credited to the Common Stock account of Agrigenetics Delaware the aggregate amount of the par value of all shares of Delaware Common Stock resulting from the conversion of the outstanding New Mexico Common Stock pursuant to the Merger.

(c) There shall be credited to the additional paid-in capital account of Agrigenetics Delaware the aggregate of the amount carried in the additional paid-in capital account of Agrigenetics New Mexico immediately prior to the Effective Date.

(d) There shall be credited to the retained earnings account of Agrigenetics Delaware the aggregate of the amount carried in the retained earnings account of Agrigenetics New Mexico immediately prior to the Effective Date.

13. Amendment. At any time before or after approval and adoption by the shareholders of Agrigenetics New Mexico and prior to the Effective Date, the Merger Agreement may be amended in any manner (except that Section 5 may not be amended without the approval of the shareholders of Agrigenetics New Mexico) as may be determined in the judgment of the respective Boards of Directors of Agrigenetics Delaware and Agrigenetics New Mexico to be necessary, desirable or expedient in order to clarify the intention of the parties hereto or to effect or facilitate the purposes and intent of this Merger Agreement; provided, however, that such amendment may not materially adversely affect the rights and interests of the stockholders of Agrigenetics New Mexico.

14. Abandonment. At any time before the Effective Date, this Merger Agreement may be terminated and the Merger may be abandoned by the board of directors of either Agrigenetics Delaware or Agrigenetics New Mexico or both, notwithstanding approval of this Merger Agreement by the stockholders of Agrigenetics Delaware or the shareholders of Agrigenetics New Mexico or both.

15. Counterparts. In order to facilitate the filing and recording of this Merger Agreement the same may be executed in two or more counterparts, each of which shall be deemed to be an original and the same agreement.

IN WITNESS WHEREOF, this Merger Agreement, having first been duly approved by resolution of the boards of directors of Agrigenetics New Mexico and Agrigenetics Delaware, is hereby executed on behalf of each of said two corporations by their respective officers thereunto duly authorized, on the date first above written.

AGRIGENETICS CORPORATION
A New Mexico Corporation

By: David J. Padwa
David J. Padwa
Chairman of the Board and
Chief Executive Officer

ATTEST:

By: James B. Alley, Jr.
James B. Alley, Jr.
Secretary and
General Counsel

AGRIGENETICS CORPORATION
A Delaware Corporation

By: David J. Padwa
David J. Padwa
Chairman of the Board and
Chief Executive Officer

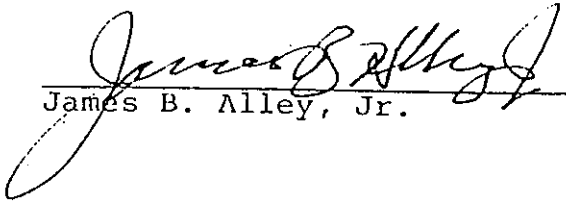
ATTEST:

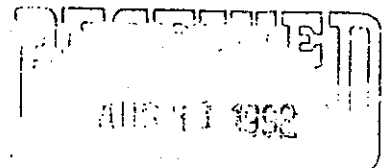
By: James B. Alley, Jr.
James B. Alley, Jr.
Secretary and
General Counsel

Certificate of Secretary

I, James B. Alley, Jr., Secretary of AGRIGENETICS CORPORATION, a Delaware corporation, hereby certify, as such Secretary, that no vote of the stockholders of said corporation was required with respect to the merger described in the Plan and Agreement of Merger to which this Certificate is attached and that said Plan and Agreement of Merger has been adopted pursuant to Subsection 251(f) of the General Corporation Law of the State of Delaware and that as of the date of this Certificate, the outstanding shares of said corporation were such as to render that subsection applicable.

IN WITNESS WHEREOF, I have executed this Certificate on behalf of said corporation this 2nd day of August, 1982.

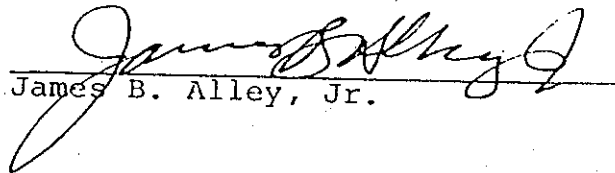

James B. Alley, Jr.



Certificate of Secretary

I, James B. Alley, Jr., Secretary of AGRIGENETICS CORPORATION, a New Mexico corporation ("Agrigenetics New Mexico"), do hereby certify, as such Secretary, that the Plan and Agreement of Merger to which this Certificate is attached, after having been first duly adopted and executed by Agrigenetics New Mexico and AGRIGENETICS CORPORATION, a Delaware corporation, was duly submitted to the stockholders of Agrigenetics New Mexico at a meeting of stockholders called for the purpose of acting on said Plan and Agreement of Merger after due notice of the time, place and purpose of said meeting was mailed to each holder of common stock of Agrigenetics New Mexico at his address as it appears on the records of Agrigenetics New Mexico in the manner provided by New Mexico law, and that at said meeting the Plan and Agreement of Merger was considered and a vote taken for its adoption or rejection and that at said meeting at least two-thirds of the outstanding common stock of Agrigenetics New Mexico entitled to vote thereon was voted for the adoption of said Plan and Agreement of Merger, and that at the time of said meeting no Special Class A stock was outstanding, and that thereby said Plan and Agreement of Merger was at said meeting duly adopted as the act of the stockholders of Agrigenetics New Mexico and as the agreement and act of Agrigenetics New Mexico.

IN WITNESS WHEREOF, I have executed this Certificate on behalf of said corporation this 27th day of August, 1982.


James B. Alley, Jr.

Second Execution of Plan and Agreement of Merger

The foregoing Plan and Agreement of Merger having been duly adopted and executed by AGRIGENETICS CORPORATION, a Delaware corporation ("Agrigenetics Delaware"), and by AGRIGENETICS CORPORATION, a New Mexico corporation ("Agrigenetics New Mexico"), in accordance with the General Corporation Law of the State of Delaware, and having been duly submitted to the stockholders of Agrigenetics New Mexico and having been duly adopted by the requisite vote of the outstanding stock of said corporation entitled to vote thereon, and no vote of the stockholders of Agrigenetics Delaware having been required, and those facts having been certified on said Plan and Agreement of Merger by the Secretary of Agrigenetics Delaware and by the Secretary of Agrigenetics New Mexico, the Chairman of the Board of Agrigenetics Delaware and the Chairman of the Board of Agrigenetics New Mexico do hereby execute said Plan and Agreement of Merger in accordance with the General Corporation Law of the State of Delaware, and the Secretary of Agrigenetics Delaware and the Secretary of Agrigenetics New Mexico do hereby attest such execution of their respective corporations as the respective act, deed and agreement of each of said corporations, on this 27th day of August, 1982.

AGRIGENETICS CORPORATION
A Delaware Corporation

By David J. Padwa
David J. Padwa
Chairman of the Board

ATTEST:

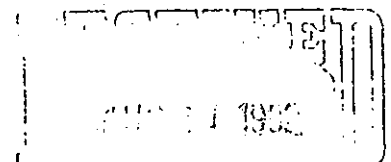
By James B. Alley, Jr.
James B. Alley, Jr.
Secretary

AGRIGENETICS CORPORATION
A New Mexico Corporation

By David J. Padwa
David J. Padwa
Chairman of the Board

ATTEST:

By James B. Alley, Jr.
James B. Alley, Jr.
Secretary



NOTE: Full merger documentation is on
file in transfer file.

For: Cotton Variety GSC 30)
Certificate No.: 8800048)
Issue Date: July 29, 1988)
Owner: Agrigenetics Corporation)

7900071

REQUEST FOR RECORDATION OF TITLE DOCUMENTS

Commissioner of the Plant
Variety Protection Office
United States Department
of Agriculture
10301 Baltimore Blvd.
Beltsville, MD 20705-2351

Sir:

Enclosed please find notarially certified copies of the
following merger documents:

1) merger of Agrigenetics Corporation, a New Mexico
Corporation into Agrigenetics Corporation, a Delaware Corporation;
and

2) merger of Agrigenetics Corporation, a Delaware
Corporation into The Lubrizol Corporation Corporation, an Ohio
Corporation.

Please record these documents against the above Plant
Variety Protection Certificates.

Title to said certificates should now be reflected in
Lubrizol Corporation, an Ohio Corporation.

Enclosed is a check in the amount of \$275.00 for the
recording fee (\$25.00 for each certificate).

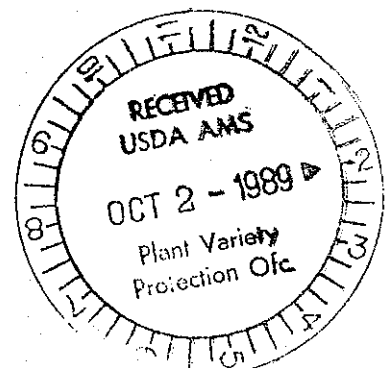
Respectfully submitted,

Ellen P. Winner

Ellen P. Winner
Patent Office Reg. No. 28,547

Greenlee and Associates
5370 Manhattan Circle
Suite 201
Boulder, CO 80303
(303) 499-8080

leb: 9/28/89



IN THE UNITED STATES DEPARTMENT OF AGRICULTURE

For: Cotton Variety Blanco 3363)
Certificate No.: 7100051)
Issue Date: September 30, 1974)
Owner: Agrigenetics Corporation)

For: Cotton Variety Stripper 31A)
Certificate No.: 7400088)
Issue Date: November 24, 1975)
Owner: Agrigenetics Corporation)

For: Cotton Variety GSA 71)
Certificate No.: 7400089)
Issue Date: November 24, 1975)
Owner: Agrigenetics Corporation)

For: Cotton Variety GSA 75)
Certificate No.: 7605007)
Issue Date: March 18, 1977)
Owner: Agrigenetics Corporation)

For: Cotton Variety GSA 74)
Certificate No.: 7900091)
Issue Date: April 24, 1980)
Owner: Agrigenetics Corporation)

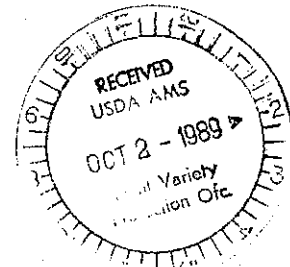
For: Cotton Variety GSA 78)
Certificate No.: 7900072)
Issue Date: June 19, 1980)
Owner: Agrigenetics Corporation)

For: Cotton Variety GSC 25)
Certificate No.: 8400057)
Issue Date: December 21, 1984)
Owner: Agrigenetics Corporation)

For: Cotton Variety GSC 20)
Certificate No.: 8400101)
Issue Date: November 30, 1984)
Owner: Agrigenetics Corporation)

For: Cotton Variety GSC 27)
Certificate No.: 8700005)
Issue Date: August 31, 1987)
Owner: Agrigenetics Corporation)

For: Cotton Variety GSC 71)
Certificate No.: 8700006)
Issue Date: August 31, 1987)
Owner: Agrigenetics Corporation)



STATE OF COLORADO)
) SS.
COUNTY OF BOULDER)

I, Andrea Ryder, notary public for the above county and state, certify that the attached copies of merger documents showing merger of Agrigenetics Corporation, a New Mexico Corporation, into Agrigenetics Corporation, a Delaware Corporation; and Agrigenetics Corporation, a Delaware Corporation into The Lubrizol Corporation, an Ohio Corporation are true and correct copies of the originals thereof, which were filed with the Delaware Secretary of State.

Subscribed and sworn to before me in the County of Boulder, State of Colorado, this 28th day of September, 1989.

Andrea Ryder

My Commission expires August 16, 1992



United States Department of Agriculture

January 21, 1998

Research, Education, and Economics
Agricultural Research Service

Marian R. Minnifield
Secretary
Plant Variety Protection Office
NAL Building, Room 500
10301 Baltimore Boulevard
Beltsville, Maryland 20705-2351

Subj: Expired PVPO's; disposition of

1. The following expired PVPO's have been transferred to the NPGS. Our records have been changed accordingly.


| <u>Serial Number</u> | | <u>PVP Number</u> | <u>EXPIRED</u> |
|----------------------|----|-------------------|----------------|
| 107423 | 01 | 7900099 | 01/02/1997 |
| 107424 | 01 | 7800077 | 01/02/1997 |
| 107425 | 01 | 7900062 | 01/02/1997 |
| 107428 | 01 | 7900095 | 01/02/1997 |
| 107429 | 01 | 7700092 | 01/02/1997 |
| 108309 | 01 | 7900116 | 01/29/1997 |
| 108310 | 01 | 7900117 | 01/29/1997 |
| 108311 | 01 | 7900087 | 01/29/1997 |
| 108312 | 01 | 7800080 | 01/29/1997 |
| 108313 | 01 | 7800020 | 01/29/1997 |
| 109381 | 01 | 7900113 | 03/27/1997 |
| 109382 | 01 | 7900030 | 03/27/1997 |
| 109383 | 01 | 7900102 | 03/27/1997 |
| 109384 | 01 | 7900063 | 03/11/1997 |
| 109386 | 01 | 7300068 | 03/11/1997 |
| 109387 | 01 | 7900120 | 02/26/1997 |
| 109388 | 01 | 7700028 | 02/26/1997 |
| 109389 | 01 | 7700112 | 02/26/1997 |
| 109390 | 01 | 7900040 | 03/11/1997 |
| 109791 | 01 | 7800071 | 02/26/1997 |
| 110210 | 01 | 8000058 | 05/15/1997 |
| 110211 | 01 | 7800103 | 05/01/1997 |
| 110212 | 02 | 8000001 | 05/01/1997 |
| 110213 | 01 | 7800001 | 05/01/1997 |

ds

| | | | |
|--------|----|---------|------------|
| 110214 | 02 | 7200105 | 04/24/0197 |
| 110215 | 01 | 8000022 | 04/24/1997 |
| 110216 | 01 | 7900060 | 05/01/1997 |
| 110217 | 01 | 7900084 | 05/01/1997 |
| 110218 | 01 | 8000071 | 05/15/1997 |
| 110219 | 01 | 7900101 | 05/01/1997 |
| 110220 | 01 | 8000043 | 05/15/1997 |
| 110221 | 01 | 8000015 | 05/15/1997 |
| 110222 | 01 | 7900111 | 05/15/1997 |
| 110223 | 01 | 7900110 | 05/15/1997 |
| 110227 | 01 | 7900106 | 05/15/1997 |
| 110228 | 01 | 7900071 | 04/24/1997 |
| 110229 | 01 | 7900100 | 05/01/1997 |
| 110230 | 01 | 7900075 | 05/01/1997 |
| 110231 | 01 | 7900108 | 04/24/1997 |
| 110236 | 01 | 8000053 | 05/29/1997 |
| 110239 | 01 | 7900098 | 05/29/1997 |
| 110240 | 01 | 7900006 | 05/29/1997 |
| 110263 | 01 | 7900042 | 06/05/1997 |
| 110264 | 01 | 8000048 | 06/05/1997 |
| 110265 | 01 | 8000063 | 06/05/1997 |
| 110266 | 01 | 8000012 | 06/05/1997 |
| 110267 | 01 | 8000049 | 06/05/1997 |
| 110268 | 01 | 7800092 | 06/05/1997 |
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| 113485 | 01 | 8000113 | 09/11/1997 |
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| 114597 | 01 | 7900104 | 10/16/1997 |
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| 114599 | 01 | 8000111 | 10/16/1997 |
| 114600 | 01 | 8000011 | 10/16/1997 |
| 114601 | 01 | 8000134 | 10/16/1997 |
| 169608 | 01 | 8100103 | 07/15/1997 |

Sincerely,



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